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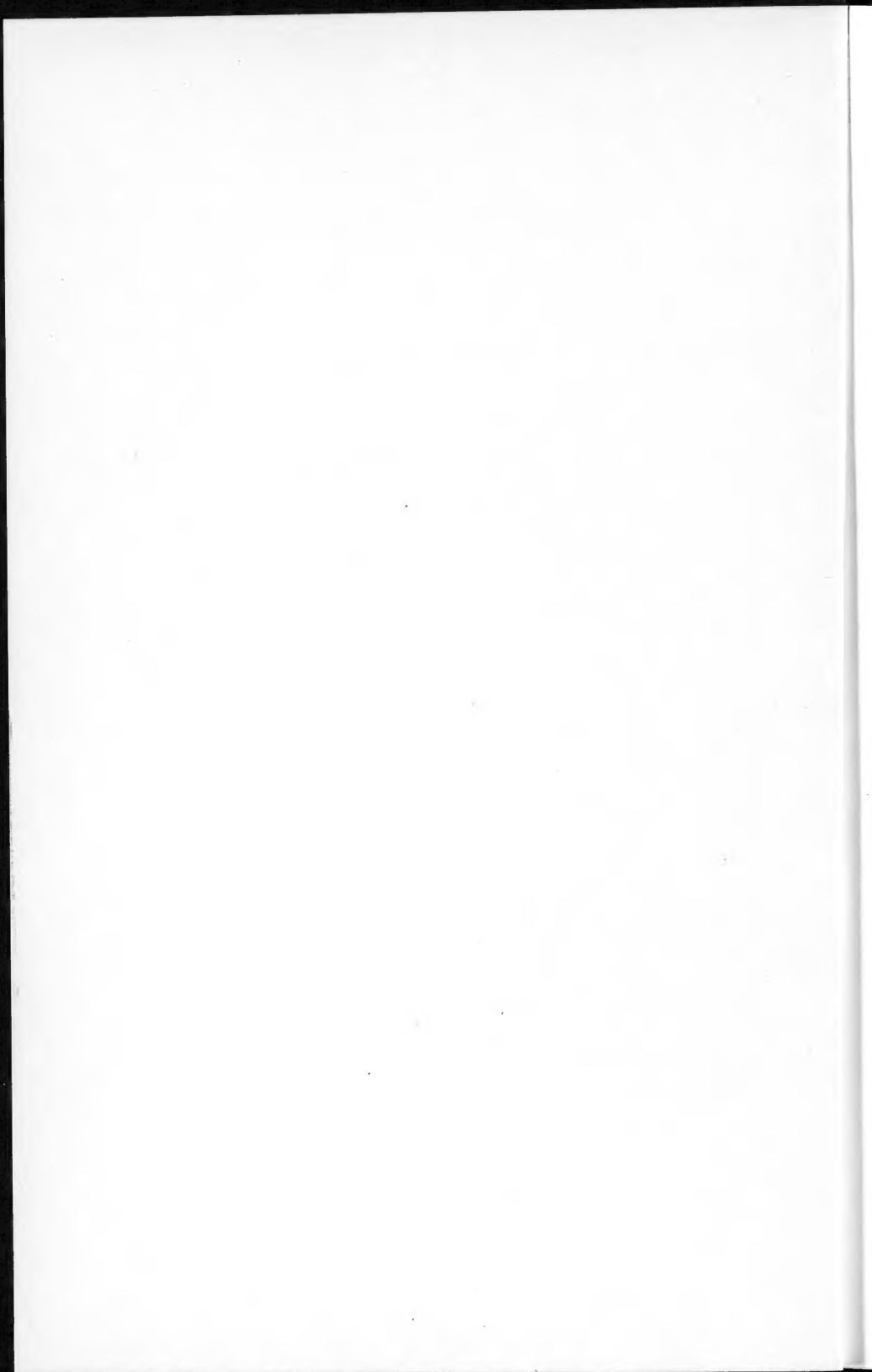


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FLORA OF THE LESSER ANTILLES

Leeward and Windward Islands

BY

RICHARD A. HOWARD

ARNOLD ARBORETUM
HARVARD UNIVERSITY

VOLUME 4

DICOTYLEDONEAE – PART 1

with the collaboration of

Elizabeth S. Kellogg and George W. Staples

Ihsan Al-Shehbaz - Capparaceae & Cruciferae

William R. Anderson - Malpighiaceae

Timothy Plowman - Erythroxylaceae

Arnold Arboretum, Harvard University
Jamaica Plain, Massachusetts

1988

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Library of Congress Catalog Card Number 74-24748

Printed in United States of America

Published May 1988

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17 June 1988 - R.A. Howard - gift

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INTRODUCTION

The first three volumes of this Flora of the Lesser Antilles treated the Orchidaceae (Garay & Sweet, 1974), the Pteridophyta (G. R. Proctor, 1977) and the remainder of the Monocotyledoneae (R. A. Howard and collaborators, 1979). Volume 4 is the first of three that will complete the Dicotyledoneae and conclude with keys to the families. The present work continues the attempt to account for all specimens and all taxa and names attributed to the Lesser Antilles, the islands between Anguilla on the north and Grenada on the south, and Barbados on the east. The published works considered in detail are Grisebach, *Flora of the British West Indian Islands* (1859-1864); Duss, *Flore Phanérogamique des Antilles Françaises* (1897); Velez, *Herbaceous Angiosperms of the Lesser Antilles* (1957); Stoffers, as editor, *Flora of the Netherlands Antilles*, uncompleted 1966-1982; Gooding, Loveless & Proctor, *Flora of Barbados* (1965); Fournet, *Flore de Guadeloupe et de Martinique* (1978); and the many publications of the late Henri Stehlé and his wife Madeleine Stehlé. Occasional references to a taxon occurring in the Lesser Antilles are found in Urban, *Symbolae Antillanae* (1898-1928) and his series *Sertum Antillanum* (1914-1930); Britton & Wilson, *Flora of Porto Rico and the Virgin Islands* (1924-1925); Williams et al, *Flora of Trinidad and Tobago* (1928-1983); and Adams, *Flowering Plants of Jamaica* (1972).

The classical sequence of families known as the Englerian System has been followed with but few exceptions. The family descriptions are deliberately broad, but the generic and specific descriptions are based primarily on material from the Lesser Antilles. Keys are given to the genera and to the species within genera and are indented in this volume due to our own dislike of the format of Volume 3. Varieties and forms may be recognized but generally are listed in synonymy for those wishing to subdivide polymorphic species. We have found that subspecific taxa recognized when only individual islands were considered did not seem significant when a greater number of specimens were examined. The treatment of species includes references, the basionym when pertinent, synonyms as used in other floras of the area, and taxa typified by specimens attributed to the Lesser Antilles. All references have been rechecked and the citations of literature, collectors and herbaria follow those of *Taxonomic Literature II* (1976-1985), *Botanico-Periodicum-Huntianum* (1968), the *Draft Index of Author Abbreviations*, Kew (1980) and *Index Herbariorum* ed. 7 (1981).

Family typification is that of Appendix II, *Nomina Familiarum Conservanda*, *International Code of Botanical Nomenclature* (1983). Generic typification follows *Index Nominum Genericorum (Plantarum)* (1979) and the *Supplement* (1986). It is intended as far as possible to indicate the type collection of each taxon and to cite not only the type locality but the collector, the specimen by number and the location of the holotype. Lectotypes and neotypes are cited if encountered on herbarium annotations and verified from published treatments. Typification of Linnaean taxa follows the recommendations of Charles Jarvis of

the British Museum (Natural History) whose work on this problem is in progress. Dr. Alicia Lourteig has published a few of the conclusions of her comprehensive study of the manuscripts, drawings and specimens of Plumier (Lourteig 1982, 1985). This much-needed work will clarify some of the problems left unresolved in the current work. My own study of the collections of Jacquin (Howard 1973, 1982) may have located most of the specimens or fragments remaining in Vienna (W) and London (BM). Special studies by Howard (1982) and Zarucchi (1983) have clarified the typification of many of Aublet's species with pertinent collections located in Paris (P) and London (BM, LINN-Sm). Typification of Swartz's species is difficult. Swartz rarely cited his own collections (Howard 1982). He studied materials in the Banks herbarium (BM) on his return from Jamaica and occasionally cited the collections of other botanists. Most of Swartz's species require the selection of uncited material, neotypes, after comparison of material in London (BM) and that in Stockholm (S). This work remains to be done. The collections available to Vahl typifying taxa he described are being examined by botanists in Copenhagen (C). Few of the West Indian species have been considered so far. Wm. Hamilton's collections were sought in Paris (P) by the late William Gillis, and his notes have been published (Howard et al 1981). Catesby's illustrations and the associated typotypes have been renamed (Howard and Staples 1983). Notes have also been published on some of the collections of Gregg, Masson, Ponthieu and Ryan (Howard & Howard 1982).

It is now fairly clear what specimens examined by Urban remain in the "Krug & Urban" herbarium in Berlin (B) (Hiepko 1978, Butzin 1981). Many of Urban's new taxa were based on the mixed collections of Eggers and those of Duss and were cited as a number and a suffix letter or "pro parte." The loss of the material Urban examined is severe. The Duss collections in particular are widely distributed and the designation of lectotypes can rarely be made by the examination of material in Paris (P) but awaits the monographer who can assemble collections from several herbaria.

Collections from St. Vincent and St. Lucia have been particularly troublesome as cited by Grisebach for the collectors Anderson, Guilding and occasionally Caley. Since Grisebach examined some material in London (K) and had his own herbarium (GOET) of specimens or fragments, the typification of taxa described by him requires comparisons of these two collections. By chance an inquiry at the Linnean Society, London, revealed a drawer of documents thought to be those of Alexander Anderson. Among them were two versions of a document we describe in this volume as Anderson's "Hortus" of the plants growing in the St. Vincent Botanic Garden prior to 1800. Further search of London archives led to some of Anderson's correspondence and to details of his life. We have extracted and organized the data in the Hortus and for many of the entries have been able to offer modern identifications. In the Hortus, Anderson described the plants he cultivated, supplying Latin and English descriptions, often new names for genera and species, data on the sources of the plants, the methods of propagation, culture, use and common names in several languages. The manuscript refers to drawings which prove to be a previously enigmatic set of water-color paintings done by a John Tyley, a native of Antigua hired by Anderson to do the illustrations for a proposed "Flora Caribees." Other paintings in part

associated with the manuscript or duplicates of the Linnean Society set have been found in the archives of the Hunt Institute for Botanical Documentation. The drawings, an occasional specimen and the text of the *Hortus* have aided the determination of Anderson collections. If the manuscript had been published when written, probably 30 genera and 50 species would have different names. As it is, perhaps 50 taxa of the Lesser Antilles are based on Anderson specimens and 15 taxa are named for him or incorrectly attributed to one of the other Andersons of the period.

Anderson we believe was born in Scotland and attended a university at Edinburgh. He corresponded with John Hope and named a plant for William Cullen. Anderson worked for a period at the Chelsea Physic Garden, possibly under Philip Miller but certainly under William Forsyth. He emigrated to New York in 1774 and made collections in the area of New York City and on Long Island, and sent specimen (BM) and living material to Europe. As a loyalist in the period of the American revolution he accompanied the British troops from New York to Philadelphia where he fled the country heading for Surinam. His vessel was captured by American privateers and he was a prisoner of war at St. Pierre, Martinique. We do not know how he reached St. Lucia but there he encountered Dr. George Young, the first director of the St. Vincent Botanic Garden (1765-1783) who was then head of the British military hospital near Castries. Young employed Anderson as a hospital orderly and Anderson had the opportunity of roaming the woods of St. Lucia collecting botanical specimens, some of which he sent to Forsyth in London (BM, K). Subsequently Anderson was to collect on Dominica, St. Vincent, Grenada and Barbados. Eventually he was recommended by Young to be his successor as superintendent of the St. Vincent Botanic Garden, a post he assumed in 1785 and held until his death in 1811. In 1791 Anderson made trips to Barbados, Trinidad and the Guianas. In Guiana he traveled up the Demerara and the Essequibo rivers and collected, as he walked between them, at an estate called The Hague in an area designated as Flanders. It is this area, we conclude, which has been called "Guiana Belgica," that has puzzled subsequent students using his specimens. Anderson collected herbarium material as well as living plants and propagating material for the St. Vincent garden. As these introduced plants grew, he made further botanical specimens from them, naming some as new and sending others to Europe for verification of his identifications. At times Anderson numbered his collections but few of these numbers remain with the specimens. It seems that Forsyth apparently associated the specimens he received with the island from which they were sent. Thus the specimens at the British Museum or Kew bear purchase labels which are not always accurate as to the place of origin and/or collection. Grisebach cited the Anderson specimens without realizing that those from plants cultivated in the St. Vincent Botanic Garden, and not so designated, really originated on other islands, in Trinidad or in northern South America.

Anderson's successor was his former collecting associate William Lochhead, who also sent to Europe some specimens collected in the botanical garden from introduced plants or from the areas of his own travels. Lochhead died after a short administration of three years. His successor was George Caley, formerly of Australia, whose administration was a disaster. It was during Caley's admin-

illustration that the Rev. Lansdown Guilding compiled and published his history of the St. Vincent Botanic Garden (1825). Guilding had access to Anderson's "Hortus" but this was denied to Caley. Both collected specimens from cultivated plants in the Garden and from the native vegetation, which each sent to Hooker. Thus some of Guilding's collections have been encountered which have Anderson's proposed new names. Caley bemoaned the fact that Anderson had not labeled the plants in the Garden and he was forced to ask for help with identifications.

Anderson was required to submit periodic reports and he listed the plants under cultivation in several complete inventories of the Garden as well as those introduced since his last report. Some of these lists were published in the Transactions of the Society of Arts, and Guilding (1825) published such a list for 1806. Some of these names have appeared in subsequent literature as accepted names or relegated to synonymy, but as far as we can tell, all are without descriptions and are invalid.

Forsyth's botanical cabinet containing specimens from Anderson was sold in lots and today parts are in the British Museum, at Kew and at Geneva. A diligent search for all Anderson specimens which have been encountered in citations, e.g. Grisebach, has been made in London and authentic material is cited in the present volume. At Geneva the specimens are loose in folders and these strapped in bundles so that a rapid search has not been feasible. Some of the living plants Anderson sent to Europe have been described in early issues of Curtis' Botanical Magazine. Anderson's "Hortus" has been most useful in determining his collections. It is hoped that the full Anderson manuscript for his "Hortus" can be published.

The data given for the general distribution of a taxon have been compiled from herbarium records and other published Floras. These may not always be accurate. For distribution within the Lesser Antilles, a north to south arrangement from Anguilla to Grenada and Barbados is used. When a validating herbarium specimen from an island has been examined, this is recorded with an exclamation mark (!) following the name of the island. Island records obtained from the literature which are not supported by specimens seen are cited without the exclamation mark.

Common names have been taken primarily from herbarium specimens as given by the collector. Since many such names are based on French and are spelled phonetically, the names in French as given by Duss or Fournet are included, although not necessarily seen on herbarium specimens. Recently the patois or Creole language of St. Lucia has been standardized for spelling and pronunciation. We are grateful to Laurent L. Jn.-Pierre and Verna Slane of St. Lucia for supplying these entries which will also be found on their collections.

Each genus has been illustrated with a drawing of at least one species. The majority have been made by Margaret von Montfrans Dykens and Ihsan Al-Shehbaz. Other drawings were made by Bobbie Angel, Vivian Clement, Jean Sinclair and Natasha Wise. Ms. Karin Douthit completed the drawings of the Malpighiaceae for William Anderson.

ACKNOWLEDGMENTS

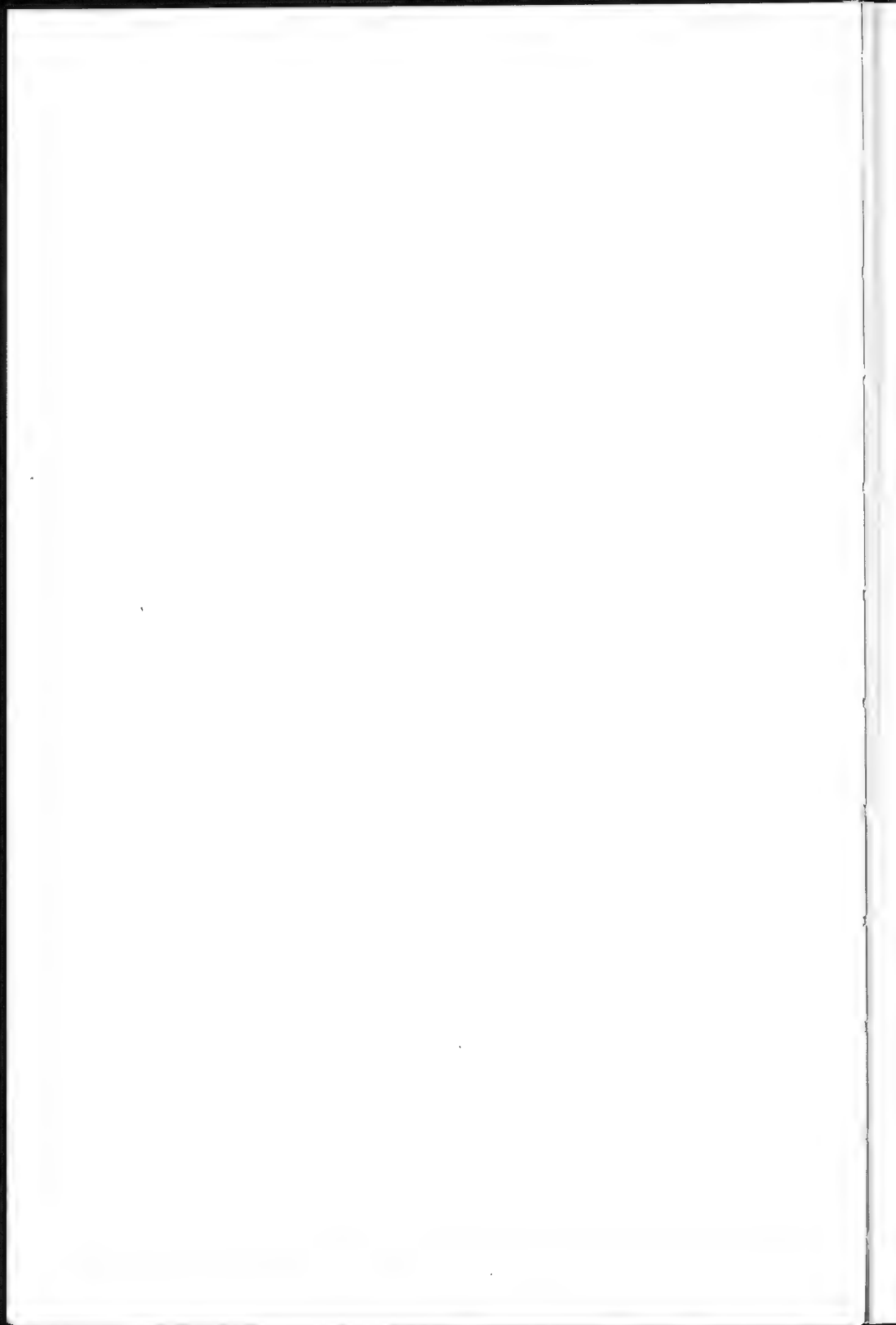
I am deeply appreciative of the contributions of Elizabeth Kellogg and George Staples, my associates in this project for the past two years. The several taxonomic treatments they supplied are credited in the text. The treatment of the Malpighiaceae was supplied by Dr. William R. Anderson of the University of Michigan, whose work was facilitated by NSF grant DEB-8103522 to the University of Michigan. He also acknowledges the contribution of Dr. Christiane Anderson for her work on the genus *Stigmaphyllon*. Dr. Timothy Plowman of the Field Museum, Chicago, contributed the treatment of the Erythroxylaceae, and Dr. Ihsan Al-Shehbaz of the Arnold Arboretum staff supplied the treatments of the Capparaceae and the Cruciferae.

The cooperation of Dr. Dan H. Nicolson, Department of Botany, Smithsonian Institution, has been extensive and is appreciated. We have shared freely our data and conclusions as he has progressed on his treatment of the Dicotyledoneae for the Flora of Dominica.

My deep appreciation is expressed to my wife, Elizabeth Solie Howard, for her companionship and contributions to this Flora through fieldwork, collecting and drying specimens over the years, and for the data obtained in searches of herbaria and archives. Finally, the arduous task of improving rough manuscript and entering the material in a word processor was handled patiently and efficiently by Dorothea Talbot.

For all of this assistance my thanks are sincere.

Fieldwork and studies in European herbaria were made possible by past grants from the National Science Foundation including the current one, BSR 83-07701. Since data for a floristic treatment are assembled over a period of years, the previous support from the American Philosophical Society and a Fellowship awarded by the John Simon Guggenheim Memorial Foundation also contributed to the preparation and production of this volume and are gratefully acknowledged.



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CASUARINACEAE

by George W. Staples

CASUARINACEAE R. Br. *in* Flinders, Voy. Terra Austr. 2: 571. 1814, nom. cons.

Evergreen trees with verticillate, scalelike leaves; arising from a root system which is nodulated and nitrogen fixing; sometimes also producing aerial suckers from the roots. Branchlets ridged, ascending or pendant, slender and green, functioning as photosynthetic organs, glabrous or pubescent within longitudinal grooves. Leaves contiguous with ridges on branchlets, either free or connate basally, glabrous or pubescent or ciliate on margins. Flowers reduced, unisexual, aerophilous; plants mono- or dioecious. Staminate inflorescences slender spikelets with imbricated flowers, borne terminally on branchlets; pistillate inflorescences compact subglobose heads, usually stalked, borne in axils of the branchlets. Infructescence conelike, formed of woody, accrescent bracteoles, many-chambered, each chamber bearing a single-seeded samara; embryos straight, seeds lacking endosperm.

TYPE GENUS: *Casuarina* Adanson.

Formerly considered a monotypic family, the Casuarinaceae has recently been divided by L. A. S. Johnson into four genera: *Gymnostoma* L. Johnson (Telopea 2(1): 83. 1980), *Allocasuarina* L. Johnson (J. Adel. Bot. Gard. 6(1): 73. 1982), *Casuarina* Adanson, and an as yet unnamed genus from Malesia, genus "C." In total there are perhaps 55-60 species in the family.

CASUARINA Adanson

Casuarina Adanson, Fam. Pl. 2: 481. 1763.

Evergreen trees with branchlets 5-16-ribbed, glabrous or with whitish pubescence in grooves (stomata concealed at bottom of grooves). Leaves lanceolate or deltoid, basally connate or free, glabrous or ciliate on margins. Plants monoecious or dioecious. Staminate flowers with 2 perianth segments and 1 exserted, oblong-elliptic, longitudinally dehiscent anther. Pistillate flowers naked, each enclosed in a broad bract and subtended by 2 minute bracteoles; ovary bicarpellate, 2-locular; ovules 2(-4), only 1 developing; style short; stigmas 2, elongate, reddish. Infructescence globose to cylindrical. Samaras glabrous, smooth, thickened basally and membranous apically, pale grayish-tan.

TYPE SPECIES: *Casuarina equisetifolia* J. R. & G. Forster.

The genus originated in Australasia but is now cosmopolitan in the tropics through introduction and cultivation of a few species, principally *C. equisetifolia*. The present circumscription of the genus *Casuarina*, and the number of

species assigned to it, await the publication of a familial revision by L. A. S. Johnson. Formerly 55 species were recognized in the genus, but with the erection of 3 new genera this number has been considerably reduced. A single species has been verified from the Lesser Antilles; other species (*C. cunninghamiana* Miq., *C. stricta* Dryand., *C. torulosa* Dryand.) have been reported and may have been introduced but no specimens have been seen to document these introductions.

NOTE: *Casuarina torulosa* is the type of *Allocasuarina*, and is now known as *A. torulosa* (Dryand.) L. Johnson.

Casuarina equisetifolia L. ex J. R. & G. Forster, Char. Gen. Pl. 104. 1776.

FIGURE 1.

Type: Rumphius, Herb. Amboinense 3: pl. 57. 1743.

Syn.: *Casuarina litorea* L., Amoen. Acad. 4: 143. 1759, sensu Fosberg & Sachet, Smiths. Contr. Bot. 24: 1-6. 1975.

Trees to 15 m tall, with ascending branches and open crown; bark dark gray-brown, smooth to slightly fissured; rarely suckering from roots. Branchlets gray-green, with whitish trichomes in the longitudinal grooves; leaves scalelike, lanceolate, basally connate, margins ciliolate, apically free, (6-)7(-8) at each node. Plants monoecious; staminate inflorescences (8-)12-16(-30) mm long, tan; pistillate inflorescences 3-5 mm long, reddish. Infructescence to 18 mm in diameter, brown-gray; stalk 7-13 mm long. Samaras tan to pale brown, 6-8 mm long and 1-3 mm broad; wing twice as long as seed.

GENERAL DISTRIBUTION: Originally from Australia and the islands of the Indo-Pacific, now widespread in the tropics generally.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent, Grenada, Barbados!.

COMMON NAMES: Beefwood; filao.

NOTES: Relatively common along seacoasts and in sandy, nutrient-poor soils generally. It is quite salt tolerant and is often planted along beaches and dunes, on roadsides, and as a windbreak in inland situations. Cultivated; often spontaneous near sites where formerly cultivated.

PIPERACEAE

PIPERACEAE Agardh, Aphor. Bot. 201. 1825.

Succulent herbs often climbing, shrubs or small trees. Leaves alternate, opposite or whorled, petiolate or sessile, entire, palmately or pinnately veined. Inflorescences spicate, less often racemose, terminal, opposite leaves or axillary, single, branched or umbellate. Flowers perfect, minute, perianth wanting; bracts often peltate; stamens 2 to 6; ovary superior, sessile or shortly stalked, 1-celled; style 1; stigmas 1 to 5; ovule 1. Fruits small, indehiscent, drupaceous or sticky nutlets.

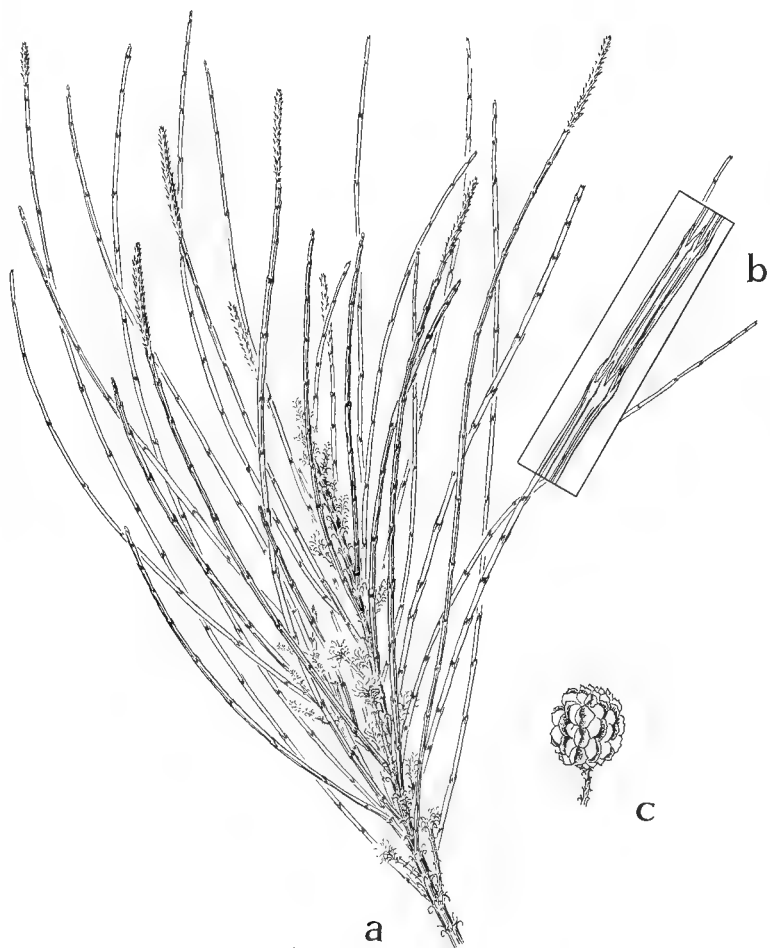


FIGURE 1. *Casuarina equisetifolia*: a, habit, x 0.7; b, detail of node and internodal areas, x 2; c, open fruit cluster, x 0.7.

TYPE GENUS: *Piper* L.

A family of 5-8 genera, distributed throughout the tropics. An extensive synonymy of subspecific taxa is given in R. A. Howard (J. Arnold Arbor. **54**: 377-411. 1973) and is not repeated in this treatment.

KEY TO THE GENERA

1. Herbaceous plants; stigmas 1 *Peperomia*
1. Plants more or less woody; stigmas 2 to 5.
 2. Inflorescences opposite leaves *Piper*
 2. Inflorescences axillary.
 3. Spikes umbellate; plants erect *Lepianthes*
 3. Spikes solitary or paired; plants scandent *Sarcorhachis*

LEPIANTHES Raf.

Lepianthes Raf., Sylva Tellur. 84. 1838.

Syn.: *Pothomorphe* Miq., Comm. Phytogr. 36. 1840. (Type species: *Piper umbellatum* L.)

Tall herbs with woody, succulent stems. Leaves alternate, petiolate, pellucid-dotted. Inflorescences axillary, pedunculate; spikes umbellate. Floral bracts peltate, villous-fimbriate on margins; stamens 2; ovary sessile, stigmas 3, sessile, recurved. Fruits drupaceous, angled; seed solitary.

TYPE SPECIES: *Piper umbellatum* L. = *Lepianthes peltata* (L.) Raf.

A genus of 2-3 species, all tropical.

NOTES: Wilbur (Taxon **34**: 287-288. 1985) chooses a legal loophole to retain *Pothomorphe* by designating as a lectotype species *Lepianthes granulatum*, "an apparent careless orthographic mistake for *granulosum* (Ruiz & Pavon) Raf.," which is a species of *Piper*. Trelease and Yuncker, specialists on the Piperaceae, knew of the existence of *Lepianthes* Raf., but dismissed it as too similar to *Lepanthes*. Their delimitation of *Pothomorphe* is accepted with the name change and the same typification. A. G. Jones and W. F. Lamboy (Taxon **35**: 153-155. 1986) supported this position.

Lepianthes peltata (L.) Raf., Sylva Tellur. 84. 1838.

FIGURE 2.

• Basionym: *Piper peltatum* L., Sp. Pl. **1**: 30. 1753.

Type: Hispaniola (?), Plum., Descr. Pl. Amér. t. 74. 1693.

Syn.: *Pothomorphe peltata* (L.) Miq., Comm. Phytogr. 37. 1840.

• *Piper umbellatum* L., Sp. Pl. **1**: 30. 1753. (Type: Hispaniola, Plum., Descr. Pl. Amér. t. 73. 1693.)

Lepianthes umbellata (L.) Raf., Sylva Tellur. 84. 1838.

Pothomorphe umbellata (L.) Miq., Comm. Phytogr. 36. 1840.

Pothomorphe dussii Trel. in Stehlé, Fl. Descr. Antilles **2**(1): 61, pl. 1. 1940. (Type: Martinique, Duss 1340 (holotype, US).)

Soft-wooded shrub or herb to 2 m tall, stems glabrous or pubescent. Petioles 8-20 cm long; blades suborbicular to ovate, 16-35 x 15-34 cm, peltate or not, apex

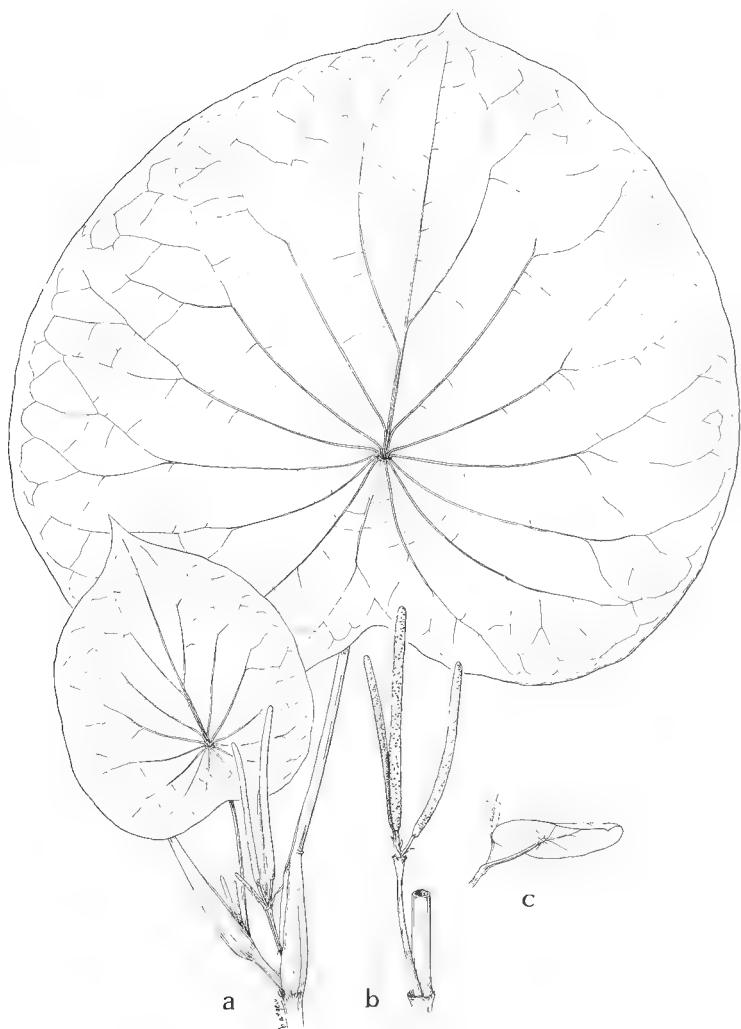


FIGURE 2. *Lepianthes peltata*: a, habit, x 0.45; b, detail of inflorescence; c, view showing peltate blade.

acute, base cordate, glabrous or pubescent on palmate veins. Peduncles 1-7 cm long; spikes 4 to 10, shortly pedunculate. Drupelets 0.5 mm long.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Cowwheel bush, chapeau g'leau, bois-anisette.

NOTES: Britton (in Bull. Torrey Bot. Club **35**: 566. 1909) combined *Pothomorphe peltata* and *P. umbellata* after finding both peltate and nonpeltate leaves on single plants.

PEPEROMIA Ruiz & Pavon

Peperomia Ruiz & Pavon, Fl. Peruv. Prodr. 8. 1794; Syst. Veg. Fl. Peruv. Chil. **1**: 29. 1798.

Terrestrial or epiphytic herbs; stems succulent, creeping, pendulous or erect, glabrous or variously pubescent. Leaves alternate, opposite or whorled, petiolate or sessile, palmate- or pinnate-veined, entire. Inflorescences spicate, opposite leaf or terminal. Flowers numerous, subtended by circular or elliptic, often peltate bracts; stamens 2; ovary sessile or stalked, sometimes beaked; stigma 1, terminal or lateral. Fruits minute, ellipsoid to globose, sessile or stalked, smooth or verruculose, commonly viscid.

TYPE SPECIES: *Peperomia secunda* Ruiz & Pavon.

Perhaps 1000 species of the tropics and subtropics, many epiphytic. In addition to the native species, *Peperomia sandersii* var. *argyreia* E. Morris is commonly grown as a pot plant, and other species have been introduced recently into cultivation. For data on typification of species of **Peperomia** see A.G. Jones, *Phytologia* **59**(3): 149-218. 1986.

COMMON NAMES: The common names gironflée, queue de souris, mourron, ti-mourron, queue de rat and malimbé are applied indiscriminately to species of *Peperomia* in the French islands.

KEY TO THE SPECIES

1. Leaves opposite or ternate.
 2. Leaf apex rounded to emarginate; stems repent, freely rooting at nodes; blades mostly elliptical *P. trifolia*
 2. Leaf apex acute to obtuse.
 3. Leaves mostly broadest above middle; stems and leaves crispate pubescent with arching hairs *P. humilis*
 3. Leaves mostly broadest below middle; stems puberulent; leaves glabrous *P. truncigaudens*
1. Leaves alternate.
 4. Leaf blades mostly less than 2 cm long.

5. Leaves cordate or truncate at base, often broader than long.
 6. Plants erect; leaves thin and pellucid; fruit longitudinally ridged *P. pellucida*
 6. Plants repent, freely rooted at nodes; leaves opaque; fruit ellipsoidal, attenuate to recurved at apex, not ridged *P. serpens*
5. Leaves rounded or obtuse at base.
 7. Leaves oval to oblong-elliptic.
 8. Leaves rarely to 5 mm diameter, apex emarginate *P. emarginella*
 8. Leaves 1-2 cm long, oval, rarely oblong-elliptic, apex rounded *P. rotundifolia*
 7. Leaves ovate-lanceolate or elliptic.
 9. Rigidly erect, infrequently branched plants; flowering stems straight; leaves ovate-lanceolate, ciliate and cucullate at apex; fruit pedicellate *P. tenella*
 9. Diffusely branched plants; flowering stems geniculate; leaves elliptic, obtuse to rounded at apex, crispose-puberulent; fruit sessile *P. vincentiana*
4. Leaf blades more than 2 cm long.
 10. Leaves ovate.
 11. Leaf blades peltate *P. hernandiifolia*
 11. Leaf blades not peltate, cordate or truncate at base *P. urocarpa*
 10. Leaves ovate-lanceolate, ovate-elliptic to obovate, rounded or attenuate at base.
 12. Erect plants with stout stems, freely branching from base *P. myrtifolia*
 12. Epiphytic plants with hanging or climbing stems freely rooted at base and at several nodes.
 13. Inflorescences opposite leaves; plants pubescent *P. hirtella*
 13. Inflorescences terminal or axillary.
 14. Leaves cuneate at base, seemingly decurrent on petiole; fruit attenuate at apex.
 15. Fruit beak slender, equal to or longer than fruit, usually abruptly hooked at apex *P. obtusifolia*
 15. Fruit beak subulate, not longer than fruit, curved but not abruptly hooked at apex *P. magnoliifolia*
 14. Leaves rounded, obtuse or acute at base, not decurrent on petiole; fruit globose without an extended beak.
 16. Leaves conspicuously and copiously black punctate-dotted when dry.
 17. Petioles crispose-ciliate on margins, cilia descending below node in 2 lines *P. glabella*
 17. Petioles without cilia on margin or below node *P. nigropunctate*
 16. Leaves not conspicuously black punctate-dotted; stems geniculate *P. smithiana*

Peperomia emarginella (Sw.) C. DC., Prodr. 16(1): 437. 1869.

Basionym: *Piper emarginella* Sw. ex Wikström, Kongl. Vetensk. Akad. Handl. 56. 1828.
 Type: Jamaica, Swartz s.n. (holotype, s).

Epiphytic herb with filiform stems, rooting freely and climbing, or pendant in festoons. Leaves alternate, with petioles 1-3 mm long; blades oval to orbicular,

2.4 x 2-5.5 mm, glabrous or pubescent, the apex truncate or emarginate, the base rounded, truncate or cordate, the margins often ciliate. Spikes terminal, 7-12 mm long, loosely flowered. Drupes stalked, oblong-obovoid, < 1 mm long.

GENERAL DISTRIBUTION: Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Nevis, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

Peperomia glabella (Sw.) A. Dietr. in L., Sp. Pl. ed. 6, 1: 156. 1831.

Basionym: *Piper glabellum* Sw., Prodr. 16. 1788.

Type: Jamaica, Swartz s.n. (holotype, s).

Syn.: *Peperomia glabella* var. *eustatiana* C. DC. in Urban, Symb. Antill. 3: 236. 1902.

(Type: St. Eustatius, *Suringar* s.n. (B?; G, not found).)

Epiphytic climbing herbs, rooting at nodes. Leaves alternate, with petioles 0.5-1.3 cm long, ciliate on margins, cilia descending on stem in two lines; blades ovate-lanceolate to ovate, 3.0-6.5 x 1.5-4.0 cm, black-dotted, the apex acute or acuminate, commonly ciliate, the base cuneate. Spikes terminal, 5-12 cm long. Drupes ovoid, 0.5-0.7 mm long, slightly curved upwards and attached laterally at base, glandular.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Kitts, St. Vincent!, Grenada!.

Peperomia hernandiifolia (M. Vahl) A. Dietr. in L., Sp. Pl. ed. 6, 1: 157. 1831
(as *hernandiaefolia*.)

FIGURE 3.

Basionym: *Piper hernandiifolium* M. Vahl, Enum. Pl. 1: 344. 1804 (as *hernandifolium*).

Type: India occidentali, no collector cited (holotype, c).

Repent or ascending herb, freely rooting at nodes; stems commonly red-purple, puberulent. Leaves alternate, with petioles 4-8 cm long; blades orbicular-ovate, 6-9 x 3-7 cm, peltate, generally puberulent on both surfaces, apex acuminate, base rounded, margins ciliate. Spikes terminal; peduncles to 8 cm long, bracteate near middle, fertile portions to 8 cm long. Drupes ellipsoid, 1 mm long, papillate, apex elongate.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Nevis!, Guadeloupe!, Dominica!, Martinique!, St. Lucia, St. Vincent!, Grenada!.

Peperomia hirtella Miq., London J. Bot. 4: 414. 1845.

Type: Dominica, Imray 244 (K).

Syn.: *Peperomia allorgeana* Stehlé, Candollea 8: 76. 1940. (Type: Martinique, H. & M. Stehlé 3386 (holotype, P).)



FIGURE 3 *Peperomia hernandiifolia*: habit, x 0.47.

- Peperomia belangeri* C. DC., Prodr. **16**(1): 411. 1869. (Type: Martinique, *Belanger* 137 (holotype, G).)
- Peperomia bracteiflora* C. DC., Mem. Soc. Phys. Genève **27**(2): 317. 1882. (Type: Martinique, *Hahn* 647 (holotype, G-DC; isotype, K).)
- Peperomia cataractae-gaudens* Trel. in Stehlé, Fl. Descr. Antilles **2**: 144. 1940. (Type: Guadeloupe, *H. & M. Stehlé* 1625 (NY, P, holotype not designated).)
- Peperomia dissitiflora* C. DC. in Briq., Annuaire Conserv. Jard. Bot. Genève **2**: 279. 1898. (Type: Martinique, *Hahn* 649 p.p. (holotype, G, not found; isotype, K).)
- Peperomia dussii* C. DC. in Urban, Symb. Antill. **3**: 231. 1902. (Type: Martinique, *Duss* 14, p.p. (B?; G, not found).)
- Peperomia evadens* Trel. in Stehlé, Fl. Descr. Antilles **2**: 134. 1940. (Type: Guadeloupe, *Stehlé* 330 (NY, P, holotype not designated).)
- Peperomia hahnii* C. DC., Linnaea **37**: 368. 1872. (Type: Martinique, *Hahn* 257 (holotype, G; isotype, BM).)
- Peperomia herminieri* C. DC., Mem. Soc. Phys. Genève **27**(2): 306. t. 14. 1882. (Type: Guadeloupe, *l'Herminier* s.n. (holotype, G).)
- Peperomia subbracteiflora* C. DC. in Urban, Symb. Antill. **5**: 298. 1907. (Type: Guadeloupe, *Duss* 4107 (holotype, P; isotype, G-DC).)
- Peperomia subvillosa* Van Heurck & Müll. Arg. in Van Heurck, Observ. Bot. **1**: 113. 1876. (Type: Martinique, *Sieber* s.n. (Hb. Van Heurck).)

Herb repent and rooting, ultimate tips erect, all parts hirtellous. Leaves alternate, with petioles 1 cm long; blades ovate-lanceolate to ovate-elliptic, 3.5-7.0 x

2.5-3.5 cm, apex acuminate, base rounded, strongly 3- to 5-nerved from base. Spikes opposite leaves or terminal, 3-5 cm long. Drupes globose, basally attached, glandular.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

Peperomia humilis A. Dietr. in L., Sp. Pl. ed. 6, 1: 168. 1831.

Type: St. Croix, West s.n.

Syn.: *Peperomia questeliana* Stehlé & Trel. in Stehlé, Candollea 8: 77. 1940. (Type: St. Bartholomew, *Questel 2518* (holotype, P).)

Terrestrial plants, simple or branched, occasionally rooting at several nodes, glabrous. Leaves opposite or ternate, with petioles 4-15 mm long; blades obovate to obovate-elliptic, 1-5 x 0.6-2.3 cm, appressed hirtellous, glandular-dotted, apex rounded, obtuse or acute, base cuneate or acute, margins ciliate. Spikes terminal; peduncles 1.5 cm long, puberulent or glabrous; fertile spikes laxly flowered, 4-12 cm long. Drupes elliptic-ovoid, to 0.5 mm long, glandular papillate.

NOTE: Boufford (J. Arnold Arbor. 63: 320, 322. 1982) has pointed out correctly that although *Piper humile* M. Vahl (Enum. Pl. 1: 349. 1804) was cited by Dietrich, Vahl's name is illegitimate as a later homonym of Miller (1768). *Peperomia humilis* Dietrich is therefore regarded as a new name as used in the genus *Peperomia*.

GENERAL DISTRIBUTION: Florida, Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts!, Antigua!, St. Kitts!, Guadeloupe!.

Peperomia magnoliifolia (Jacq.) A. Dietr. in L., Sp. Pl. ed. 6, 1: 153. 1831.

Basionym: *Piper magnoliaefolium* Jacq., Collectanea 3: 210. 1791.

Type locality: Venezuela.

Syn.: *Peperomia conulifera* Trel. in Stehlé & Quentin, Fl. Guad. 2(2): 44. 1948. (Type: Barbados, *Eggers 7202* (holotype, US).)

Peperomia praestigiatrix Trel. in Stehlé & Quentin, Fl. Guad. 2(1): 3. 1937. (Type: Guadeloupe, *Stehlé 1619* (holotype, NY).)

Peperomia pustulatifolia Trel. & Stehlé, Candollea 10: 288. 1946. (Type: Barbados, *H. & M. Stehlé 1647* (lectotype, NY).)

Terrestrial, rarely epiphytic, herb with trailing and rooted stems, glabrous. Leaves alternate, with petioles 1-5 cm long, winged or ridged; blades elliptic to obovate-elliptic, 4-15 x 2-8 cm, apex rounded, often slightly emarginate, base cuneate or abruptly contracted and often decurrent on petiole. Spikes terminal; peduncles 1.5-9.0 cm long, bracted at middle; fertile portion 5-18 cm long. Drupes ellipsoid, 1.25 mm long, extended to awl-shaped beak 1/4 to as long as drupe, slightly curved.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Saba!, St. Eustatius!, Nevis!, Montserrat!, Guadeloupe, La Désirade!, Marie Galante!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

***Peperomia myrtifolia* (M. Vahl) A. Dietr. in L., Sp. Pl. ed. 6, 1: 147. 1831.**

Basionym: *Piper myrtifolia* M. Vahl, Enum. Pl. 1: 341. 1804.

Type: St. Croix, *Pflug s.n.* (holotype, c).

Syn.: *Peperomia auberyana* Trel. in Stehlé, Fl. Guad. 2(2): 57. 1948. (Type: Aubrey 1622 (lectotype, NY).)

Peperomia barthelemyana Trel. in Stehlé, Fl. Guad. 2(2): 58. 1948. (Type: St. Barts, *Questel 275* (holotype, NY).)

Peperomia boldinghii C. DC. in Urban, Symb. Antill. 7: 186. 1912. (Type: Saba, *Boldingh 2105* (B?; g, not found).)

Peperomia broadwayi C. DC. in Urban, Symb. Antill. 3: 240. 1902. (Syntypes: Martinique, *Duss 1262* (B?; g, not found); Grenada, *Broadway 647* (G-DC).)

Peperomia doleana Trel. in Stehlé, Candollea 10: 288. 1946. (Type: Guadeloupe, *Trelease 66* (holotype, P).)

Peperomia dolosa Trel. in Stehlé & Quentin, Fl. Guad. 2(2): 52. 1948. (Type: Îles des Saintes, *H. & M. Stehlé 155* (NY, P, holotype not designated).)

Peperomia guadeloupensis C. DC., J. Bot. 4: 139. 1866. (Syntypes: Guadeloupe, *Ed. Jardin 340*; Cuba or., *Wright 504* (K); Ecuador, *Fraser s.n.*; St. Croix, *anon.* (none found at G).)

Peperomia persuccosa C. DC., Repert. Spec. Nov. Regni Veg. 15: 3. 1917. (Type: Guadeloupe, *Duss 2830* (B?; g, not found).)

Peperomia rupertiana C. DC., Prodr. 16(1): 413. 1869. (Type: Dominica, *Prince Rupert s.n.* (isotype, K).)

Peperomia vanheurckii C. DC. in Van Heurck, Observ. Bot. 1: 116. 1876. (Type: Martinique, *Sieber s.n.* (holotype, G, not found).)

Terrestrial plant, erect and branched from base, glabrous. Leaves alternate, with petioles 4-7 mm long; blades rhombic-oblong to oval or ovate, 3.5-9.0 x 1.5-5.0 cm, apex obtuse or acute, base acute, strongly 3- or 5-nerved from base. Spikes terminal; peduncles 5 mm long; fertile spikes to 12 cm long. Drupes globose, glandular-papillose, laterally attached.

GENERAL DISTRIBUTION: St. Croix and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Redonda!, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

***Peperomia nigropunctata* Miq., Syst. Piperac. 188. 1843.**

Type: Martinique, *Sieber 6* (holotype, B; isotype, BM, GH).

Syn.: *Piper acuminatum* L., Sp. Pl. 1: 30. 1753. (Type: America calidiore, Plum., Descr. Pl. Amér. t. 71. 1693.)

Peperomia acuminata (L.) C. DC. in Urban, Symb. Antill. 3: 242. 1902, not Ruiz & Pavón, 1798.

Peperomia ajoupana Trel. in Stehlé & Quentin, Fl. Guad. 2(1): 3. 1937, nom. nud. (Type: Guadeloupe, *Stehlé 1772* (holotype, P).)

Peperomia balineorum Trel. & Stehlé in Stehlé, Candollea 8: 80. 1940. (Type: Guadeloupe, *H. & M. Stehlé 230* (holotype, P).)

- Peperomia balneolorum* Trel. in Stehlé & Quentin, Fl. Guad. 2(1): 3. 1937. (Type: Guadeloupe, Stehlé 1348 (holotype, P).)
- Peperomia houelmonte* Trel. in Stehlé, Bull. Soc. Bot. France 83: 628. 1936, nom. nud.
- Peperomia martinicensis* C. DC. ex Trel. in Stehlé, Bull. Soc. Bot. France 84: 409. 1937. (Type: Guadeloupe, Stehlé & Branquec 975 (holotype, P).)
- Peperomia martinicensis* Trel. in Stehlé, Bull. Soc. Bot. France 85: 578. 1938. (Type: Martinique, Hahn 649 p.p. (holotype, US; isotype, K).)
- Peperomia nigrescens* Stehlé, Candollea 8: 80. 1940. (Type: Guadeloupe, H. Stehlé & Quentin 233 (holotype, P).)
- Peperomia palpebrata* Trel. in Stehlé, Candollea 8: 81. 1940. (Type: Martinique, H. & M. Stehlé "894" (error for 984; holotype, NY).)
- Peperomia stehleana* Trel. in Stehlé, Candollea 8: 79. 1940. (Type: Guadeloupe, H. & M. Stehlé 25 (holotype, NY).)
- Peperomia thionvilleana* Trel. in Stehlé & Quentin, Fl. Guad. 2(2): 59. 1948. (Type: Guadeloupe, H. & M. Stehlé & Quentin 2582 (type location not designated).)
- Peperomia wilsonii* Stehlé, Candollea 8: 78. 1940. (Type: Guadeloupe, H. & M. Stehlé 2545 (lectotype, NY).)

Terrestrial or epiphytic herb, rooting at lower nodes; branches ascending or plants pendant; stems geniculate. Leaves alternate, with petioles 1-2 cm long, clasping at base; blades lanceolate-elliptic to subrhombic-elliptic, variable in size, 3.5-8.0 x 1-4 cm, apex acuminate, base acute to rounded, 5-plex-nerved from base; drying black, conspicuously densely black punctate-dotted. Spikes terminal and often also opposite leaves; peduncles 1-2 cm long; fertile spikes tenuous, to 12 cm long. Drupes globose-ovoid, attached laterally, apex oblique.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!.

NOTES: The sheet of *Sieber 6* at K is determined as *Peperomia cubana* C. DC. by "R.A.R.", and as *P. subvillosa* by Trelease.

***Peperomia obtusifolia* (L.) A. Dietr. in L., Sp. Pl. ed. 6, 1: 154. 1831.**

Basionym: *Piper obtusifolium* L., Sp. Pl. 1: 30. 1753.

Type: "America calidiore," Plum., Descr. Pl. Amér. t. 70. 1693.

Syn.: *Peperomia cuneata* Miq., London J. Bot. 4: 429. 1845. (Type: St. Vincent, Guilding s.n. (holotype, U; isotype, K).)

Terrestrial or epiphytic herb; stems long repent and rooting at nodes, glabrous. Leaves alternate, with petioles 1.5-4.0 cm long; blades elliptic-obovate, oblanceolate to obovate, 5-12 x 2.4-6.0 cm, apex rounded or emarginate, base cuneate and slightly decurrent on petiole. Spikes terminal; peduncles to 8 cm long with 1 or 2 widely spaced bracts, puberulent or glabrous; fertile portions 5-10 cm long. Drupes ellipsoid, 0.7-1.0 mm long with slender erect beak strongly hooked at apex.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!, Grenada!.

NOTES: In fully mature fruit *P. obtusifolia* and *P. magnoliifolia* appear to be clearly distinct species. In immature or sterile condition they cannot be distinguished. *Peperomia obtusifolia* is represented by very few collections from the Lesser Antilles.

***Peperomia pellucida* (L.) Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 1: 64. 1815.**

Basionym: *Piper pellucidum* L., Sp. Pl. 1: 30. 1753.

Type: Not designated.

Erect herbs, tissue subtranslucent, glabrous. Leaves alternate, with petioles 6-12 mm long, clasping at base; blades fleshy to membranous, deltoid-ovate, 1.4-2.5 x 2.0-3.5 cm, the apex acute, the base subtruncate, rounded or cordate. Spikes terminal; peduncles 4-7 mm long; fertile spikes laxly flowered, 1.5-5.0 cm long. Drupes subglobose, 0.5-0.6 mm in diameter, conspicuously ridged.

GENERAL DISTRIBUTION: Throughout the tropics of the Old and New World.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia, St. Vincent!, Grenada!, Barbados!.

NOTES: This species is known as "water cress" on St. Kitts and is the only *Peperomia* to be considered a weedy plant, occurring on rock walls, along stone paths and in gardens. On St. Lucia it is called "shinning bush" or "zèb a kuwès" and is eaten as a green vegetable.

***Peperomia rotundifolia* (L.) Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 1: 65. 1815.**

Basionym: *Piper rotundifolium* L., Sp. Pl. 1: 30. 1753.

Type: Martinique, Plum., Descr. Pl. Amér. t. 69. 1693.

Syn.: *Piper nummularifolium* Sw., Prodr. 16. 1788. (Type: Jamaica, Swartz s.n. (holotype, s; isotype, BM).)

Peperomia nummularifolia (Sw.) Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 1: 66. 1815.

Peperomia vernouana Trel. in Stehlé & Quentin, Fl. Guad. 2(2): 55. 1948. (Type: Guadeloupe, H. & M. Stehlé & Quentin 3003 (NY, P, holotype not designated).)

Tenuous vine appressed to trunks and branches or rarely descending in festoons, stems sparsely pubescent. Leaves alternate, with petioles 1-7 mm long; blades oval, obovate or suborbicular, 4-15 x 4-12 mm, often thick when fresh, sparsely pubescent on both surfaces, apex rounded, base acute or rounded. Spikes terminal; peduncles 2-6 mm long, hirtellous; fertile spikes 2-4 cm long. Drupes globose-ellipsoid 0.6-0.7 mm long, basally attached.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados.

COMMON NAME: Nowo kako.

NOTES: Fawcett & Rendle (1914) cite a Browne specimen in hb. Linnaeus as the type. Neither we nor C. Jarvis (curator of the Linnaean collections) have been able to locate it.

Peperomia serpens (Sw.) Loudon, Hort. Brit. 13. 1830.

Basionym: *Piper serpens* Sw., Prodr. 16. 1788.

Type: Jamaica, Swartz s.n. (holotype, s).

Syn.: *Peperomia reniformis* Hook., Exot. Fl. 3: 164, pl. 164. 1825. (Type: St. Vincent, Guilding s.n. (holotype, k).)

Piper guildingianum Sprengel, Syst. Veg. (Cur. Post.) 4: 20. 1827, nom. illegit.

Epiphytic repent herb freely rooted at nodes. Leaves alternate, with petioles 5-25 mm long; blades reniform or broadly ovate 1-2 x 1.5-2 cm, apex acute or obtuse, base truncate or shallowly cordate, crispate pubescent on both surfaces and ciliate on margins. Spikes terminal; peduncles 1-2.5 cm long, with 1 or 2 bracts; fertile spikes 1-1.5 cm long. Drupes ellipsoid, 1 mm long, slender beaked.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius!, St. Kitts!, Montserrat!, St. Lucia, St. Vincent!, Grenada!.

Peperomia smithiana C. DC. in Urban, Symb. Antill. 3: 235. 1902.

Type: St. Vincent, H. H. & G. W. Smith 1645b (b?; c, not found).

Syn.: *Peperomia diaphanoides* Dahlst. var. *vincentensis* Dahlst., Kongl. Svenska Vetenskapsakad. Handl. 33(2): 114. 1900. (Type: St. Vincent, H. H. & G. W. Smith 1645 (holotype, s; isotype, k).) Specimen at k does not agree with protologue.

Epiphytic on tree trunks, stems freely rooting, climbing, geniculate. Leaves alternate, with petioles 5 mm long; blades ovate to ovate-lanceolate, 3.5-4.0 x 1.3-2.0 cm, glabrous above, sparsely pubescent below, 5-nerved, black dotted, apex acuminate, base acute to round. Spikes axillary; peduncles 2-5 mm long; fertile spikes 1.5-2.0 cm long. Drupes globose, 0.5 mm in diameter, glandular-papillate.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!, St. Vincent!.

Peperomia tenella (Sw.) A. Dietr. in L., Sp. Pl. ed. 6, 1: 153. 1831.

Basionym: *Piper tenellum* Sw., Prodr. 16. 1788.

Type: Jamaica, Swartz s.n. (holotype, s).

Syn.: *Peperomia tenella* var. *epiphytica* Trel. in Stehlé & Quentin, Fl. Guad. 2(2): 41. 1948. (Type: Guadeloupe, Duss 3248 (holotype, us).)

Terrestrial or epiphytic herb; stems short, trailing, becoming stiffly erect,

orange-red in color, thinly hirsute. Leaves alternate, with petioles 2-4 mm long; blades ovate-lanceolate 7-15 x 3-8 mm, apex acute, slightly emarginate to cucullate at ultimate apex, apically ciliate, base rounded, hirsute and ciliate on margins. Spikes terminal, erect or axillary; peduncles 7-10 mm long; fertile portions 2-3 cm long, often swollen at middle. Drupes slightly pedicellate, obpyriform, 2 mm long.

GENERAL DISTRIBUTION: Central America, Greater Antilles, Lesser Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Lucia!, Grenada.

Peperomia trifolia (L.) A. Dietr. in L., Sp. Pl. ed. 6, 1: 173. 1831.

Basionym: *Piper trifolium* L., Sp. Pl. 1: 30. 1753.

Type: Martinique, Plum., Descr. Pl. Amér. t. 68. 1693.

Syn.: *Piper obovatum* M. Vahl, Eclog. Amer. 1: 5. 1797, not Ruiz & Pavón, 1794. (Type: Montserrat, *Ryan s.n.* (holotype, c).)

Piper obversum M. Vahl, Enum. Pl. 1: 354. 1804. (Type: Montserrat, *Ryan s.n.* (holotype, c).)

Peperomia balbisii Dahlst. in Duss, Fl. Phan. Antill. Franç. 174. 1897. (Type: Guadeloupe, *Duss 2566* (holotype, B).)

Peperomia caespitiformans Trel. in Stehlé, Candollea 8: 77. 1940. (Type: Guadeloupe, *Stehlé 1753* (holotype, P).)

Peperomia fimbriata Miq., Syst. Piperac. 178. 1843. (Type: St. Lucia, *Anderson s.n.* (G-DEL).)

Peperomia obovata (M. Vahl) C. DC. in Urban, Symb. Antill. 3: 269. 1902.

Peperomia obversa (M. Vahl) A. Dietr. in L., Sp. Pl. ed. 6, 1: 173. 1831.

Peperomia ovalifolia Hook., Exot. Fl. 3: 165, pl. 165. 1825. (Type: St. Vincent, *Guilding s.n.* (holotype, K, not found; isotype GH).)

Epiphytic climbing and rooted herb with long drooping stems, hirtellous. Leaves ternate, with petioles 1-4 mm long; blades obovate, obovate-elliptic or ovate, 10-20 x 5-14 mm, strongly 3-nerved, generally thick, slightly hirtellous, apex rounded and emarginate, base acute to rounded. Spikes terminal; peduncles 1-2 cm long; fertile spikes 3.0-7.5 cm long. Drupes globose, basally attached, glandular, with awl-shaped beak.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Peperomia truncicaudens C. DC. in Urban, Symb. Antill. 3: 237. 1902.

Type: Guadeloupe, *Duss 3616b* (holotype, G-DC).

Epiphytic herb, rooting at lower nodes. Leaves opposite, with petioles 1 cm long; blades elliptic, 1.7-2.2 x 0.8-1.2 cm, apex long acuminate, base acute, puberulent on veins. Spikes axillary; peduncles 8 mm long; fertile spikes 2 cm long. Drupes ovate-globose, basally attached, apex obliquely apiculate.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!. Known only from the type collection made at the foot of Grande Découverte.

Peperomia urocarpa Fischer & C. Meyer, Index Sem. Hort. Petrop. **4**: 42, no. 1577. 1838.

Type: Cultivated plant in Europe, from Brazil.

Syn.: *Peperomia davisii* Britton, Torreyia **2**: 43. 1902. (Type: St. Kitts, Britton & Cowell 506 (holotype, NY).)

Peperomia fumeana Stehlé & Trel. in Stehlé, Bull. Soc. Bot. France **84**: 408. 1937. (Type: Guadeloupe, Stehlé 340 (holotype, P).)

Peperomia hederacea Miq. in C. Martius, Fl. Bras. **4**(1): 20. 1853, nom. illegit.

Peperomia negotiosa Trel. in Stehlé & Quentin, Fl. Guad. **2**(2): 60. 1948. (Type: Guadeloupe, H. & M. Stehlé & Quentin 1613 (lectotype, NY).)

Epiphytic or terrestrial repent creeping herb, freely rooting, densely crisp-pubescent. Leaves alternate, with petioles 1.5-4.5 cm long, puberulent; blades broadly ovate to deltoid or reniform, 2-5 x 2.5-4.7 cm, crisp-pubescent on both surfaces, the apex acute, the base rounded, truncate to shallowly cordate. Spikes terminal or axillary; peduncles 2-5 cm long with 1 or 2 ovate bracts; fertile spikes 3-5 cm long. Drupes ellipsoid, 0.7 mm long, attenuate to slender beak.

GENERAL DISTRIBUTION: Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Saba, St. Kitts!, Guadeloupe!

Peperomia vincentiana Miq., London J. Bot. **4**: 414. 1845.

Type: St. Vincent, *Guilding s.n.* (holotype, U; isotype, K).

Epiphytic climbing repent herb, often with long, freely hanging branches; stems puberulous. Leaves alternate, with petioles 2-5 mm long; blades broadly elliptic to elliptic-obovate, 6-9 x 3-9 mm, thick, puberulous to glabrate, apex obtuse, base acute. Spikes axillary; peduncles 3-5 mm long; fertile spike 3-4 cm long. Flowers remote. Drupes globose, apex glandular.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada.

PIPER L.

Piper L., Sp. Pl. **1**: 28. 1753.

Syn.: *Discipiper* Trel. & Stehlé, Candollea **20**: 282. 1940. (Type species: *Piper reticulatum* L. = *Discipiper reticulatum* (L.) Trel. & Stehlé.)

Shrubs, rarely small trees or woody vines; stems commonly nodose. Leaves alternate; blades entire and pellucid dotted. Inflorescences spicate, opposing leaves. Bracts peltate; stamens 2 to 6; ovary sessile; stigmas 2 to 5. Fruit a drupe, ellipsoid to subglobose.

TYPE SPECIES: *Piper nigrum* L.

A tropical genus of about 2000 species. The following additional species have been in cultivation in the Lesser Antilles: *Piper arboreum* Aublet (Martinique), *Piper tuberculatum* Jacq. (Guadeloupe), *Piper sanctum* (Miq.) Schldl. ex C. DC.

(Dominica as *P. papantlense*) and *Piper unguiculatum* Ruiz & Pavon (Guadeloupe).

The common names queue à rat, malimbé, and bois-chandelle are applied to all species of *Piper* in the French islands. All species found in Dominica are called doctor bush. For data on the typification of species see A. G. Jones, *Phytologia* **58**: 1-100. 1985.

KEY TO THE SPECIES

1. Leaves palmately nerved or pli-nerved from the base.
 2. Climbing plants, cultivated or persisting after cultivation.
 3. Fruits rounded, free from rachis; leaf base symmetrical, acute *P. nigrum*
 3. Fruits embedded in fleshy rachis; leaf base asymmetrically obtuse, rounded or cordate *P. betle*
 2. Free-standing shrubs.
 4. Style surmounting a fleshy disc which persists in fruit *P. reticulatum*
 4. Fruit tapering to styles, without apical disc *P. amalago*
1. Leaves pinnately veined.
 5. Climbing plants; fruiting spikes short and thick, 1-2 cm long *P. retrofractum*
 5. Erect shrubs; fruiting spikes elongate.
 6. Fruit triangular in section.
 7. Leaf base symmetrical, venation uniformly pinnate *P. aequale*
 7. Leaf base asymmetrical, veins arising from lower 2/3 of leaf *P. dilatatum*
 6. Fruit oblong or orbicular in section.
 8. Inflorescence short and thick with sterile filiform apex; stipular scar nearly length of petiole *P. glabrescens*
 8. Inflorescence elongate without sterile filiform apex; stipular scar short and at base of petiole.
 9. Inflorescence tenuous, strongly curved; leaves scabrous above *P. aduncum*
 9. Inflorescence straight.
 10. Leaves smooth above, rarely pustulate and subscabrous; stems and petioles glabrous or glabrate *P. dussii*
 10. Leaves scabrous above, stems and petioles densely pubescent *P. hispidum*

Piper aduncum L., Sp. Pl. 1: 29. 1753.

Type: Not designated.

Syn.: *Piper hebecarpum* C. DC. in Urban, Symb. Antill. **3**: 183. 1902. (Syntypes: Martinique, Duss 18, 1334 (B?; G, not found).)

Piper martinicense C. DC. in Briq., Annuaire Conserv. Jard. Bot. Genève **2**: 259. 1898. (Type: Martinique, Hahn 1143 (G-DC, not found).)

Piper stehleorum Trel. in Stehlé, Fl. Descr. Antilles **2**(1): 100. 1940. (Syntypes: Guadeloupe, H. & M. Stehlé 3257, 3209, 3240, 3244 (P, lectotypification not attempted here).)

Piper subrectinerve C. DC. in Urban, Symb. Antill. **3**: 180. 1902. (Syntypes: St. Vincent, Eggers 6924, 6736 (B?; G, not found, A).)

Shrub or small tree to 6 m tall; stems nodose, thinly puberulous-glabrescent. Leaves with petioles 3-8 mm long, pubescent; blades elliptic or lanceolate, 12-20 x 4-7 cm, apex long acuminate, base asymmetrically rounded or cordate, sca-

brous and pubescent above. Peduncles 10-15 mm long; fertile spikes 8-15 cm long, curved; bracts rounded, marginally fringed. Drupes obovoid, tetragonous.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Dominica!, Martinique!, St. Vincent!, Grenada!, Barbados.

COMMON NAMES: Jointwood.

Piper aequale M. Vahl, Eclog. Amer. **1**: 4, t. 3. 1797.

FIGURE 4.

Type: Montserrat, *Ryan s.n.* (holotype, c; isotype, BM).

Syn.: *Piper dominicanum* C. DC. in Urban, Symb. Antill. **3**: 205. 1902. (Type: Dominica, Duss 19 (B?; G, not found).)

Piper hahnii C. DC., Linnaea **37**: 354. 1872. As to description only. Protologue cites *Hahn 263* in hb. DC, not found. A specimen in the general collection at G, *Hahn 262* has been marked "Typus." See also *P. dussii*.

Shrub to 3 m tall; branches conspicuously nodose, glabrous. Leaves with petioles 7-8 mm long; blades oblong-elliptic, 11-18 x 4.5-8.0 cm, apex acuminate, acumen obtuse, base obtuse, symmetrical. Peduncles 1 cm long; fertile spikes 4-6 cm long. Drupes trigonous.

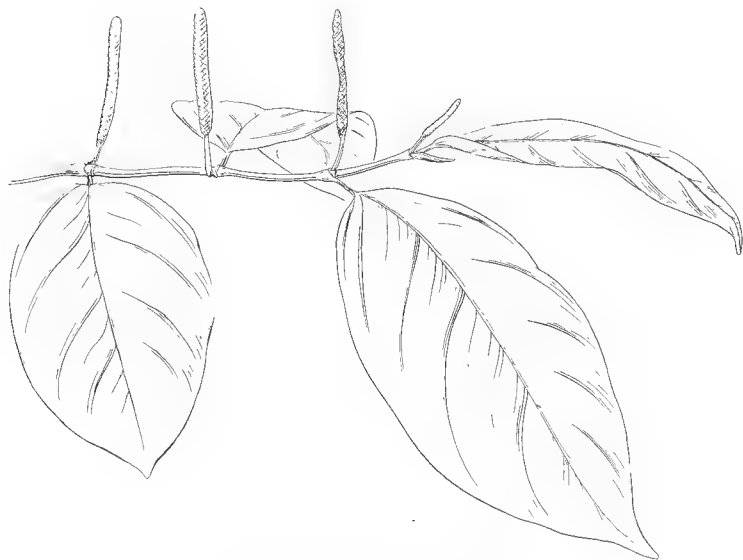


FIGURE 4. *Piper aequale*: habit, x 0.47.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

Piper amalago L., Sp. Pl. 1: 29. 1753.

Type: Not designated.

Syn.: *Piper mac-intoshii* Trel. in Stehlé, Candollea 10: 286. 1946. (Type: Barbados, MacIntosh 3001 (holotype, P; isotype, LL).)

Piper plantagineum Lam., Tabl. Encycl. 1: 80. 1791. (Type: Sloane, Voy. Jamaica t. 87.)

Shrub to 2 m tall; stems nodose, black, glabrous. Leaves with petioles 1 cm long; blades ovate to ovate-elliptic, 9-12 x 4-6 cm, apex long acuminate, base acute, symmetrical, glabrous, 5-nerved from base. Peduncles 1.0-1.5 cm long; fertile spikes 5-10 cm long; bracts ovate. Drupes ovoid, tapering to apex.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Vincent!, Barbados!.

Piper betle L., Sp. Pl. 1: 28. 1753.

Type: Not designated; probably material in hb. Hermann.

Scandent dioecious vine; stems to 15 m long, glabrous. Leaves with petioles 1-2 cm long; blades ovate to oblong-ovate, 6-17 x 4-10 cm, the apex acuminate, the base obtuse to rounded or cordate, oblique, palmately 7-nerved or pili-nerved. Peduncles 1.5-3.5 cm long; staminate spikes 7-13 cm long; fruiting spikes 4-5 cm long, rachis thickened and fleshy. Drupes mostly embedded.

GENERAL DISTRIBUTION: Native of the Old World, widely cultivated in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Seen in current cultivation in Guadeloupe and Martinique; formerly cultivated in botanical gardens on Dominica and St. Vincent.

Piper dilatatum Rich., Actes Soc. Hist. Nat. Paris 1: 105. 1792.

Type: Guyana, Leblond s.n. (P).

Syn.: *Piper balbisianum* C. DC. in Urban, Symb. Antill. 3: 205. 1902. (Type: Guadeloupe, Bertero s.n. (holotype, B?, presumed destroyed).)

Piper calciseligens Trel. in Stehlé, Fl. Descr. Antilles 2(1): 97. 1940. (Type: Guadeloupe, H. & M. Stehlé 1340 (type location not specified).)

Piper eggersii C. DC. in Urban, Symb. Antill. 3: 200. 1902. (Type: Barbados, Eggers 7157 (B?; isotype, A, G-DC).)

Piper dilatatum forma *naris-fractae* Trel. in Stehlé, Fl. Descr. Antilles 2(1): 95. 1940. (Type: Guadeloupe, Duss 4174 (holotype, G).)

Piper readii C. DC. in Urban, Symb. Antill. 3: 197. 1902. (Type: Guadeloupe, Read s.n. (B?; G, not found).)

Schilleria ulmifolia Kunth, *Linnaea* **13**: 698. 1839. (Type: Martinique, Sieber 7 (holotype, P; isotype, BM).)

Shrub 2-3 m tall; stems nodose, crisp-pubescent or glabrate. Leaves with petioles 5-10 mm long, vaginate at base; blades broadly rhombic-elliptic to sub-ovate, 12-20 x 4-10 cm, the apex acuminate, the base asymmetrical, rounded, obtuse or slightly cordate, arcuate veins from lower 1/2 - 2/3 of midrib, glabrous. Peduncles 1 cm long; fertile spikes 10-15 cm long. Drupes trigonous, papillate-puberulent at apex.

GENERAL DISTRIBUTION: Central America, Greater Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Malanbé, bwa mal lèsto, grande malimbé, candle bush.

Piper dussii C. DC. in Urban, *Symb. Antill.* **3**: 190. 1902.

Type: Guadeloupe, *Duss* 2835 (B?, G-DC).

Syn.: *Piper broadwayi* C. DC. in Urban, *Symb. Antill.* **3**: 191. 1902. Syntypes: Guadeloupe, *Krauss* 1818; Dominica, *Ramage s.n.*; Grenada, *Broadway* 1480 (G, not found).

Piper hahnii C. DC., *Linnaea* **37**: 354. 1872. (Type: Guadeloupe, *Hahn* 263 (isotype, BM!); as to type but not description, which = *P. aequale*.)

Piper latilimbum C. DC. in Urban, *Symb. Antill.* **5**: 295. 1907. (Type: Guadeloupe, *Duss* 4079 (B?, G, GH).)

Shrub to 3 m tall; stems nodose, puberulent to glabrate. Leaves with petioles 5 mm long, commonly hirsute; blades elliptic, 14-26 x 6-13 cm, apex acuminate, base asymmetrical, both sides rounded but offset to 1 cm, venation pinnate; pilose above when young, becoming glabrate, adpressed pubescent below. Peduncles 5-15 mm long; fertile spikes to 3 cm long. Drupes tetragonous.

GENERAL DISTRIBUTION: Restricted to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Nevis, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!.

Piper glabrescens (Miq.) C. DC., *Prodr.* **16**(1): 271. 1869.

Basionym: *Artanthe glabrescens* Miq., *London J. Bot.* **4**: 461. 1845.

Type: British Guiana, *Parker s.n.* (holotype, K).

Syn.: *Piper andersonii* C. DC. in Urban, *Symb. Antill.* **3**: 194. 1902. (Lectotype: St. Lucia, *Anderson s.n.* (K, not found).)

Piper nottirbanum Trel. in Stehlé, *Bull. Soc. Bot. France* **85**: 576. 1938. (Type: Guadeloupe, *H. & M. Stehlé* 1748 (holotype, P).)

Piper quentinii Trel. in Stehlé, *Candollea* **8**: 74. 1940. (Type: Guadeloupe, specimen citations erroneous; lectotype, NY.)

Shrub to 3 m tall; stems nodose, glabrous. Leaves with petioles to 1.5 cm long, vaginate with stipular scar nearly full length; blades elliptic-oblong, 17-24 x 8-12 cm, apex acuminate, acumen acute, base subasymmetrical, both sides rounded, cordate or obtuse, glabrous above, pilose below on veins. Peduncles 5-10 mm

long; fertile spikes 3-5 cm long, sterile filiform apex 2-3 mm long. Drupes tetragonous.

GENERAL DISTRIBUTION: Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

Piper hispidum Sw., Prodr. 15. 1788.

Type: Jamaica, *Swartz s.n.* (holotype, s; isotype, BM).

Syn.: *Piper scabrum* Sw., Fl. Ind. Occid. 1: 59. 1797, not Lam., 1791. (Type: Jamaica, *Swartz s.n.* (holotype, s).)

Piper hirsutum Sw., Fl. Ind. Occid. 1: 60. 1797, nom. illegit.

Piper malanganum Trel. in Stehlé, Candollea 8: 75. 1940. (Type: Guadeloupe, *Stehlé 338* (holotype, P).)

Shrub to 4 m tall; stems nodose, hispid. Leaves with petioles 5-10 mm long, vaginate, hirtellous; blades elliptic to ovate-elliptic, 11-19 x 4-10 cm, apex acuminate, base strongly asymmetrical, narrowed to obtuse or cordate lobes, scabrous above. Peduncles 1 cm long; fertile spikes 8-11 cm long; bracts triangular-subpeltate, marginally fringed. Drupes tetragonous to oval-oblong in section, puberulent at apex.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Martinique!, St. Vincent!.

Piper nigrum L., Sp. Pl. 1: 28. 1753.

Type: Not designated; probably material in hb. Hermann.

Cultivated vine, often persisting; stems glabrous to 20 m long, but usually much shorter. Leaves with petioles 1.5-2.0 cm long; blades ovate, 11-15 x 5-10 cm, apex acuminate, base rounded to acute, asymmetrical, venation palmate from base to pinnately immediately above base. Peduncles 1-3 cm long; fruiting spikes 10-14 cm long. Flowers perfect or unisexual. Drupes rounded, free from rachis.

GENERAL DISTRIBUTION: Native of Old World widely cultivated in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Once introduced and cultivated on nearly every island. Now encountered in Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

Piper reticulatum L., Sp. Pl. 1: 29. 1753.

Type: Martinique, Plum., Descr. Pl. Amér. t. 75. 1693.

Syn.: *Piper duchassaingii* C. DC., Prodr. 16(1): 251. 1869. (Syntypes: Guadeloupe, *Duchassaing s.n.* (B, presumed destroyed), *Bertero s.n.* (G).)

Discipiper reticulatum (L.) Trel. & Stehlé, Candollea 10: 283. 1946.

Piper smilacifolium Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 1: 56. 1816.

(Type: "prope Caripe," *Humboldt* 379 (P-HBK; IDC 6209. 6: II. 5, photo!.)
Enckea smilacifolia (Kunth) Kunth, *Linnaea* 13: 605. 1839.

Shrub to 3 m tall; stems nodose, glabrous. Leaves with petioles 1.0-1.5 cm long; blades broadly ovate, 15-27 x 8-16 cm, apex acuminate, base equal, cordate, or subtruncate, palmately 7- to 9-nerved. Peduncles 1.0-2.5 cm long; fertile spikes 12-15 cm long; rachis hirtellous-glandular. Ovary obovate; style disciform, orbicular. Drupes obovate, subquadragonal, velutinous, disc glabrous.

GENERAL DISTRIBUTION: Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Vincent.

COMMON NAME: Pepper-elder.

Piper retrofractum M. Vahl, Enum. Pl. 1: 314. 1804.

Type: India orientali (holotype, c).

Climbing dioecious plant of unknown height, stems black, glabrous. Leaves with petioles 5-11 mm long; blades oblong-ovate to oblong-elliptic, 8-16 x 3.5-6 cm, apex acuminate, base acute, obtuse or rounded, venation pinnate. Peduncles 10-18 mm long; fertile spikes 3.2-5.5 cm long, 6.5-11.0 mm thick. Drupes subglobose, more or less united and fused with axis.

GENERAL DISTRIBUTION: Native of the Old World, introduced and cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Martinique!. Introduced to an experimental station and persisting in that area.

SARCORHACHIS Trel.

Sarcorhachis Trel., Contr. U. S. Natl. Herb. 26: 16. 1927; emend. Steyermark, Pittieria 3: 29-37. 1971.

Shrubs, trailing or climbing, succulent, glabrous. Leaves alternate. Inflorescences axillary, spicate, 1 or 2 per axil. Flowers minute, pistils partially submerged in fleshy rachis, stigmas 4 or 5, sessile. Fruit a drupe, immersed in or coalescent with axis; seed 1.

TYPE SPECIES: *Piper incurvum* Sieber ex Schultes = *Sarcorhachis incurva* (Sieber ex Schultes) Trel.

A genus of five species from Central America, the Lesser Antilles and South America. Primarily distinguished from *Piper* by the axillary position of the inflorescences.

Sarcorhachis incurva (Sieber ex Schultes) Trel., Contr. U. S. Natl. Herb. 26: 16. 1927.

FIGURE 5.

Basionym: *Piper incurvum* Sieber ex Schultes, Mant. 1: 238. 1822.



FIGURE 5. *Sarcorhachis incurva*: habit, x 0.6.

Type: Guadeloupe, *Sieber 254*.

Syn.: *Artanthe martinicae* Miq., Syst. Piperac. 413. 1844. (Type: Martinique, *Sieber 254* (holotype, B; isotype, GH).)

Piper guadeloupense C. DC. in Briq., Annuaire Conserv. Jard. Bot. Genève 2: 264. 1898. (Syntypes: Guadeloupe, *l'Herminier s.n.* (P); Dominica, *Eggers 664* (G, P); Dominica, *Hahn 1303* (G); Guiana, *Richard s.n.* (P).)

Scandent or occasionally trailing succulent and semi-woody liana. Leaves with petioles 3.5-4.5 cm long; blades broadly ovate to cordate, 8-14 x 6-11 cm, glabrous, apex acute or abruptly so, base rounded-truncate to cordate, veins 7 to 9, palmately or sub-palmately-nerved. Peduncles 1-15 cm long; fertile spikes to 12 cm long, succulent when mature. Drupes coalesced with other tissue.

GENERAL DISTRIBUTION: Endemic to the Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

COMMON NAME: Wild black pepper.

CHLORANTHACEAE

by George W. Staples

CHLORANTHACEAE R. Br. ex Lindley, Coll. Bot. sub. t. 17. 1821, nom. cons.

Aromatic, woody or herbaceous, monoecious or dioecious plants. Leaves opposite, simple, stipulate, pinnately nerved; stipules interpetiolar, often fused with petiole bases. Flowers small, perfect or unisexual, in spikes, heads or panicles, naked or perianth reduced to small 3-lobed calyx; stamens 1 to 3, connate, anthers 2-chambered, longitudinally dehiscent; ovary inferior, unilocular; ovule solitary, pendulous, orthotropous; style short or none; stigma simple. Fruit an ovoid or globose drupe, subtended by succulent bracts; seed with oily and starchy endosperm; embryo minute.

TYPE GENUS: *Chloranthus* Sw.

A family of 5 genera and ca. 65 species found in tropical America, Asia, and Pacifica. The genus *Hedyosmum* is widespread in the neotropics with 1 species in the Lesser Antilles.

HEDYOSMUM Sw.

Hedyosmum Sw., Prodr. 84. 1788.

Syn.: *Tafallaea* Kuntze, Revis. Gen. Pl. 2: 565. 1891.

Shrubs or small trees with fragile wood; monoecious or dioecious. Leaves fleshy, petiolate; stipules fused with petiole bases into a sheath. Staminate flowers naked, in catkinlike spikes; anthers 1, 2-chambered; pistillate flowers bracteate, in racemose or paniculate inflorescences, calyx of 3 minute lobes atop ovary. Drupes trigonous, enclosed by persistent bracts.

LECTOTYPE SPECIES: *Hedyosmum nutans* Sw. (See Britton & Wilson, Bot. Porto Rico 5: 230. 1924.)

A genus of ca. 40 species in the neotropics and one in tropical Asia; one species is widespread in the Lesser Antilles. Occhioni (in Contribuição ao Estudo da Família Chloranthaceae com especial referência ao Gênero *Hedyosmum* Sw., thesis, Univ. do Brasil, Rio de Janeiro, 1958) provides a taxonomic review of the family and genus and detailed morphological studies of *Hedyosmum brasiliense* C. Martius.

***Hedyosmum arborescens* Sw., Prodr. 84. 1788.**

FIGURE 6.

Type: Jamaica, Swartz s.n. (holotype, s, not seen).

Syn.: *Tafallaea arborescens* (Sw.) Kuntze, Revis. Gen. Pl. 2: 566. 1891.

Totally glabrous, dioecious shrub or small tree, to 10 m tall, and 35 cm d.b.h., sometimes forming stilt roots to 1 m high on trunk; bark brown, smooth, thin, inner bark pink-brown, pungent; branches numerous, fastigiate, then divaricate and horizontal, fragile; twigs cylindrical, smooth to striate when dry, ringed at nodes by annular stipular scars, fistulose, 4-8 mm in diameter, internodes 1-7 cm long; stipules fused with petiole bases in an 8-12 mm long sheath. Leaves concolorous, dark green in life, with petioles 5-25 mm long, flattened when dry; blades narrowly elliptic, oblong to oblanceolate, 6-17.5 x 2.5-6 cm, the base attenuate, the margin serrate, slightly revolute, the apex acute, acuminate or cuspidate, midrib prominent below. Inflorescences axillary or terminal compound spikes, or racemose or paniculate; staminate spikes paired, opposite on rachis, greenish-yellow, (7) 15-20 (-40) mm long, subtended by 2 (or 3) carinate, apiculate bracts, 2-10 mm long; pistillate inflorescences of 2- to 4-flowered glomerules arranged in racemes or spikes, the whole subtended by 3 fleshy, greenish or whitish bracts. Staminate flowers consisting of 1 sessile anther, 2 mm long; pollen yellow, abundant; pistillate calyx minute, 3-toothed, epigynous; stigma sessile, bright green. Drupes watery, lavender to red when ripe, 3-3.5 mm long, enclosed by persistent whitish bracts; seeds trigonous, to 2 mm long.

GENERAL DISTRIBUTION: Greater and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Bois fragile, bois de l'eau, bois-senti, bois molle.

NOTES: A common member of the Lesser Antillean flora, found in protected situations at elevations from 500-1350 meters. On St. Kitts the staminate plants have been observed to grow at higher elevations than the pistillate. The habitats where the species has been collected are: ravines and hillsides in mossy forest, elfin woodland, *Dacryodes-Sloanea* forest and upper montane rainforests, usually as an understory shrub; along trail- and roadsides; in disturbed forest and summit thickets, and on wind-swept ridges. Herbarium labels indicate gravelly yellow soil and high rainfall (4-5 m annually) at collection sites. The peak flowering season seems to be April through June, with fruit production at its height in March; reproduction probably occurs throughout the year.



FIGURE 6. *Hedyosmum arborescens*: habit, x 0.6; a, pistillate branch; b, staminate branch.

SALICACEAE

by George W. Staples

SALICACEAE Mirbel, *Elém. Phys. Vég. Bot.* **2**: 905. 1815.

Deciduous trees or shrubs; dioecious. Leaves alternate, simple, stipulate; stipules scale-like to foliaceous, caducous or persistent. Inflorescences spicate to racemose, axillary, often woolly. Flowers unisexual, naked, subtended by bract; staminate flowers with (1)2(to many) stamens, anthers longitudinally dehiscent; pistillate flowers sessile or shortly pedicellate, ovary unilocular, ovules numerous, anatropous, stigmas 2 to 4, simple or lobed. Capsules 2- to 4-valved, dehiscent; seeds minute, with dense coma of long white hairs originating from funiculus.

TYPE GENUS: *Salix* L.

A north temperate family with 3 genera.

SALIX L.

Salix L., *Sp. Pl.* **2**: 1015. 1753.

Trees or shrubs, usually of moist or riverine habitats; buds with 1 scale. Leaves petiolate. Inflorescences crowded catkins, usually erect or divergent, each flower with 1 to 4 basal glands, subtended by an entire or toothed bract; staminate flowers with 1 to many stamens; pistillate flowers with a sessile or shortly pedicellate ovary; style 1 or lacking, stigmas 2, often bilobed. Seeds numerous.

LECTOTYPE SPECIES: *Salix alba* L. (see Britton & Brown, *Ill. Fl. N. U. S.* ed. 2, **1**: 591. 1913.)

A largely temperate genus of ca. 500 species.

Salix humboldtiana Willd., *Sp. Pl.* **4**(2): 657. 1805 [1806].

FIGURE 7.

Syntypes: Peru, *Humboldt s.n.* (2 sheets, B-WILLD; IDC 7740. 1308: I. 4 (sterile), 5 (fruit), photo!).

Syn.: *Salix chilensis* Molina, *sensu auct.*

Tree to 20 m tall, fastigiate, with nearly erect, pliant branches; twigs puberulous, glabrescent. Leaves with stipules scale-like, persistent, 1 mm long, or on vigorous branches foliaceous, oblique-ovate, 3-5 mm long; petioles slender, 3-6 mm long; blades linear-falcate, 70-130 x 6-10 mm, concolorous, chartaceous, base cuneate, sometimes slightly inequilateral, margins serrulate, apex slenderly attenuate. Staminate catkins to 5 cm long, crowded woolly, each flower with 4 to 6 anthers, subtended by a single entire bract; pistillate catkins ca. 3 (-4.5) cm long, each flower with stipitate, conic-ovoid, glabrous ovary, subtended by 2 glands and 1 entire bract, stigmas 4-fid, sessile. Capsules 2-valved, slenderly ovoid, stalked, 3-5 mm long; seeds minute, white, with silky coma.

GENERAL DISTRIBUTION: Southern Mexico southwards throughout South America; cultivated and perhaps naturalized in the West Indies.



FIGURE 7. *Salix humboldtiana*: habit, x 0.65; a, detail of fruiting cluster.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!.

COMMON NAMES: Saule peuplier.

NOTES: Description based in part on West Indian and Middle American material. The species is found on the banks of watercourses, or in moist locations. It is questionably established, and doubtfully reproducing, as only sterile or staminate collections have been seen from the West Indies. The name *Salix chilensis* Molina (in Saggia, Storia Nat. Chili 169. 1782) has been applied to this taxon, but Schneider (Bot. Gaz. *Crawfordsville* 65: 6. 1918) rejects it as doubtful, and suggests Molina's plant may not be a *Salix*. Schneider (loc. cit. p. 7) suggested two forms of *S. humboldtiana* might be grown in the West Indies. All material we have seen belongs to var. *stipulacea* (Martens & Galeotti) Schneider. Fournet (1978, p. 951) reports *Salix babylonica* L. (saule pleurer) in cultivation on Guadeloupe. The 'weeping' habit of this tree distinguishes it immediately from the fastigate *S. humboldtiana*. The leaves of *S. babylonica* are yellowish-green, paler beneath, and the small stipules are caducous.

MYRICACEAE

by George W. Staples

MYRICACEAE Blume, Fl. Javae 17-18: 3. 1829, nom. cons.

Aromatic shrubs or small trees, evergreen or deciduous, roots with nitrogen-fixing nodules. Leaves alternate, petiolate, exstipulate (stipulate in *Comptonia*), entire (pinnatifid in *Comptonia*), punctate-glandulose. Inflorescences axillary ascending catkins, unisexual or bisexual; flowers subtended by 1 bract, sometimes 2-4 bracteoles also present; perianth none; staminate flowers with 2-20 stamens, filaments free or connate, anthers 2-celled, extrorse, longitudinally dehiscent, pollen porate; pistillate flowers with a superior unilocular ovary, ovule solitary, basal, erect, style short or none, stigmas 2, filiform. Fruit a drupe or nutlet, often verrucose but with smooth waxy outer layer; seed 1, endosperm lacking, embryo straight, cotyledons flat-convex, radicle short.

TYPE GENUS: *Myrica* L.

A family with about 56 species assigned to two genera: the monotypic *Comptonia* of the eastern United States, and the widespread *Myrica*.

MYRICA L.

Myrica L., Sp. Pl. 2: 1024. 1753.

Syn.: *Cerothamnus* Tidestrom, Elys. Marian. 40. 1910. Type species: not designated.

Shrubs or small trees with spreading branches, usually gland-dotted on all parts with peltate, golden-yellow glands, aromatic when bruised; stems usually with white lenticels; plants usually dioecious, rarely monoecious. Leaves apically serrate or dentate, or entire, coriaceous, venation pinnate. Inflorescences uni-

sexual or bisexual; staminate catkins dense, ellipsoid to cylindrical; pistillate catkins sometimes lax or interrupted, ovoid to cylindric; flowers subtended by 1 ovate bract and 2-4 bracteoles, perianth none; staminate flowers with (2-)4-8(-20) stamens, filaments free or often connate, anthers ellipsoidal. Fruits drupaceous, dry or fleshy, \pm gland-dotted, covered with a waxy outer layer, often white on drying.

LECTOTYPE SPECIES: *Myrica gale* L., vide Britton and Brown, Ill. Fl. N. U.S. ed. 2, 1: 584. 1913.

A nearly cosmopolitan genus of about 55 species, occurring in wet habitats on all continents except north Africa, central and southeast Europe, southwest Asia and Australia. The nitrogen-fixing root nodules give the plants the ability to thrive in nutrient-poor, often sandy soils. Once economically important as the source of bayberry wax, the fruits also provide food for birds, which are primary dispersal agents for the seeds. Chevalier (Monographie des Myricacées, 1901) was the last to revise the genus, although Elias (in J. Arnold Arbor. 52: 305-318. 1971) and Sheffy (A study of the Myricaceae from Eocene sediments of southeastern North America, Ph.D. thesis, Indiana University, 1972) updated the taxonomy and summarized the literature on the genus. A single species, long misidentified, occurs at higher elevations in the Lesser Antilles.

***Myrica pubescens* Humb. & Bonpl. ex Willd. var. *caracasana* (Kunth) A. Chev., Monogr. Myric. 208 (journal pagination 292). 1901. FIGURE 8.**

Basionym: *Myrica caracasana* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 2: 18 (folio 2: 15). 1817.

Type: Venezuela, Silla de Caracas, *Humboldt & Bonpland s.n.* (P, n.v.; IDC 6209. 29: I. 4, photo at A!).

Syn.: *Myrica microcarpa* Benth., sensu auct.

Myrica cerifera L. var. *angustifolia* C. DC., sensu Fournet.

Shrub to 5 m tall; stems rough, grayish to brownish, with prominent white lenticels; leaves with petioles angulate, 1-3 mm long; the blades broadly obovate to elliptic, 3-5 x 1-2.3 cm, stiffly chartaceous to coriaceous, reddish brown when dry, darker above, gland-dotted on both surfaces, floccose with white hairs or glabrate, the base cuneate, often attenuate into petiole, the margins entire proximally, crenate-serrate distally, revolute, the apex rounded, obtuse or acute. Inflorescences sometimes from old leaf scars (then appearing cauliflorous), ascending, unisexual (pistillate) or bisexual catkins, the latter with staminate flowers subtending the pistillate (or perfect) flowers; bracts ovate, < 1 mm long; bracteoles 2, scalelike, often ciliate; staminate flowers with 2 subsessile stamens, filaments fused basally, anthers < 1 mm long; pistillate flowers with sessile, spherical, subglabrous ovary, stigmas tapering filiform, reddish, persisting in fruit; perfect flowers with 2 stamens \pm fused to pistil. Young fruits sometimes with staminal remnants attached near apex; drupes spherical, 1-2 mm in diameter, squamose with fusiform plates when young, smooth, white and waxy at maturity; seed ovoid, tan, glabrous, ca. 1 mm long.

GENERAL DISTRIBUTION: Higher elevations in Venezuela, Bolivia, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!

COMMON NAME: Caca-ravet.

NOTES: A monoecious species found growing at elevations of 700-1200 m on Morne Anglais, Dominica, and in the Savane aux Ananas, Guadeloupe. Reported to be common at the former and rare at the latter site. Bird dispersal of the drupes may account for the highly disjunct distribution of this species.

The identity of the Lesser Antillean collections of *Myrica* has long been problematic. The earliest authors treated them as *Myrica microcarpa* Benth. Urban (Bot. Jahrb. Syst. 15: 359. 1893) and Chevalier (loc. cit. 208) did so with reservations whereas Duss (Fl. Phan. Antill. Franç. 191. 1897) named the single collection he examined without hesitation. *Myrica microcarpa* was described as a Jamaican endemic, and the name was later applied to plants collected at higher elevations on Guadeloupe and Dominica.

More recently, Adams (Fl. Jamaica 215. 1972) included *M. microcarpa* and all other Jamaican myricas under the name *M. cerifera* L., pending detailed taxonomic investigation of the West Indian species. Fournet (Fl. Ill. Phan. Guad. Mart. 951. 1978) then called Lesser Antillean plants *M. cerifera* var. *angustifolia* C. DC. and illustrated them (p. 952) with a figure reproduced from Little et al. (Trees Puerto Rico 2: 99. 1974). We find this illustration totally unlike the Lesser Antillean material we have seen, and also find the Lesser Antillean plants are morphologically distinct from Jamaican plants called *M. microcarpa*.

In comparing the Lesser Antillean collections to other *Myrica* material in the herbarium, we noted great morphological similarity with Venezuelan plants called *M. caracasana* Kunth. Chevalier treated this species as a variety of the widespread South American taxon *M. pubescens* Willd. Although he saw material of both, he seems to have overlooked the great similarity between the continental and the Lesser Antillean plants. Now, *M. pubescens* and its varieties are distinctive in the genus because they are commonly monoecious, with both staminate and pistillate, or mixed, catkins on one plant. The Lesser Antillean plants we have seen bear either exclusively pistillate catkins or catkins with a mixture of staminate, pistillate and rarely, perfect flowers. Duss (loc. cit. 191) described dioecious plants based on one collection (*Duss 3000*); the duplicate of this number at NY bears both pistillate and mixed catkins. We found all material labeled as *M. microcarpa* and *M. cerifera* to be exclusively dioecious, and feel this sexual condition fully supports our application of Chevalier's name to Lesser Antillean plants.

While we accept Chevalier's varietal name for the plants from Dominica and Guadeloupe, we recognize that the taxonomic relationships of the South American *Myrica* are in as much need of revision as the Caribbean species. No recent treatment has covered these taxa. As defined by Chevalier, *M. pubescens* encompasses a broad range of morphological variation which shares the common property of monoecy. We can confidently relate Lesser Antillean plants only to the Venezuelan population known as variety *caracasana*, while noting that this taxon differs so much in leaf form from other varieties that it may deserve full species rank. Further investigation of the taxonomy of the New World myricas is greatly needed.



FIGURE 8. *Myrica pubescens* var. *caracasana*: habit, x 0.69; a, pistillate branch; b, staminate branch.

FAGACEAE

by George W. Staples

Two members of the *Fagaceae* have been cultivated in the Lesser Antilles. *Quercus alba* L. has been collected on Guadeloupe, where it may persist from introductions made during the last century. Questel (in *Géographie Générale de la Guadeloupe et Dépendances*, I. La Flore. 1951) reports its use as a shade tree at bourg Saint-Claude, with the common name of "chêne blanc." A recent collection (*Howard & Howard 19431*, A) from that vicinity represents a sterile, gnarled tree to 8 m tall; this specimen was said to fruit occasionally. It may be recognized by its glabrous, coriaceous, 3-7-lobed or pinnatifid, obovate-oblong leaves which are paler below. The acorns of this species are 2 cm long, sessile or shortly stalked, chestnut brown at maturity, and enclosed for 1/4 their length in a pale or light brown cup.

An old collection (*Belanger 310*, in 1859, A) from Martinique is *Castanea mollissima* Bl., the Chinese chestnut. It has not been reported in the literature as cultivated or persisting, and no recent collections have been found. This tree is recognizable by its alternate, elliptic, coarsely toothed leaves with whitish pubescence along the veins beneath. It usually bears 2 large nuts in each spiny, axillary bur; the staminate flowers are in erect catkins.

BATACEAE

by Elizabeth A. Kellogg

BATACEAE C. Martius ex Meisner, *Pl. Vasc. Gen.* 345, 349, Comm. 260. 1842. "Batideae," nom. cons.

Sprawling arching halophytic shrub; branches succulent. Leaves opposite, decussate, simple, linear, succulent; stipules minute. Flowers imperfect, plants dioecious. Inflorescences sessile catkins of decussately arranged flowers. Staminate flowers subtended by broad ovate to reniform bract, enclosed by a sac-like spathe that splits in two as flower matures, stamens 4 or 5, alternating with 4 to 5 membranous, clawed, suborbicular staminodes (these sometimes referred to as tepals); pistillate flowers subtended by broadly ovate to reniform, mucronate, peltate caducous bract, flowers embedded in swollen rachis; ovary 1, 2-carpellary but 4-celled; stigmas 2, sessile, penicellate. Fruits pyrenes formed from each locule of mature ovary, these embedded in and dispersed with entire pistillate inflorescence; embryo linear.

TYPE GENUS: *Batis* P. Browne.

A monotypic family of warm coastal habitats in the Western Hemisphere and Hawaii. For more information see G. K. Rogers in *J. Arnold Arbor.* **63**: 375-386. 1982.

BATIS P. Browne

Batis P. Browne, Civ. Nat. Hist. Jamaica 356. 1756.

Characters of the family.

TYPE SPECIES: *Batis maritima* L.

Batis maritima L., Syst. Nat. ed. 10, 2: 1289. 1759. — Based on P. Browne, Civ. Nat. Hist. Jamaica 356. 1756. FIGURE 9.

Type: Browne's description.

Glabrous shrub, strong smelling; bark smooth or striate. Leaves to 3 cm long, acute to obtuse, abaxially channeled, bases spreading into short rounded appendages, covering axillary buds. Spikes 0.5-1 cm long, pistillate enlarging to 2.5 cm in fruit.

GENERAL DISTRIBUTION: Southern U.S., Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, Saba!, St. Kitts!, Guadeloupe, Martinique!, Grenada.

COMMON NAMES: Camphire, herbe-à-crâbes.

ULMACEAE

ULMACEAE Mirbel, Elém. Phys. Vég. Bot. 2: 905. 1815.

Trees or shrubs, sometimes scandent. Leaves alternate, simple; stipules small and caducous. Plants monoecious or dioecious or flowers perfect or polygamous. Flowers usually small, in cymose clusters or solitary; sepals 4 or 5, free or partly united; petals wanting; stamens as many as and opposite sepals, erect in bud; pistillate flowers with ovary superior, 1-celled, ovule apical, styles or stigmas 2. Fruit a drupe, nut or samara.

TYPE GENUS: *Ulmus* L.

A family of 15 genera of tropical and temperate regions.

KEY TO THE GENERA

Spiny shrub with scandent branches; drupe pedunculate, solitary in leaf axils *Celtis*
Unarmed shrubs or small trees, branches distichous; drupes in cymose clusters .. *Trema*

CELTIS L.

Celtis L., Sp. Pl. 2: 1043. 1753.

Shrubs or small trees; branches often scandent, armed with curved spines. Leaves entire or serrate. Inflorescences axillary; staminate flowers in fasciculate

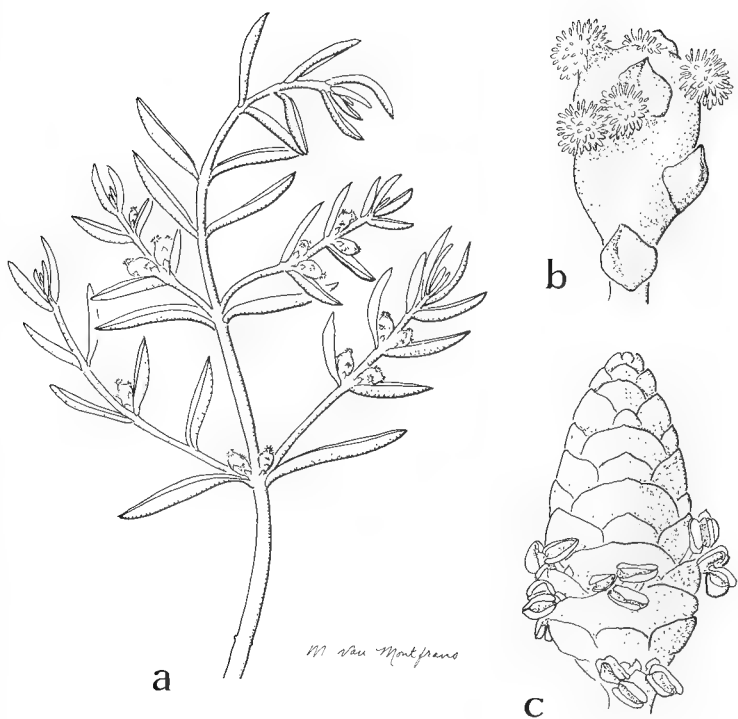


FIGURE 9. *Batis maritima*: a, habit, x 0.7; b, pistillate inflorescence, x 1; c, staminate inflorescence, x 1.

cymes, pistillate flowers solitary or in few-flowered cymes; perianth imbricate, 5-parted; styles 2, each bifid. Drupes subglobose, slightly compressed.

TYPE SPECIES: *Celtis australis* L.

A genus of 80 species of the northern hemisphere and in South Africa.

Celtis iguanaea (Jacq.) Sarg., Silva 7: 64. 1895.

FIGURE 10.

Basionym: *Rhamnus iguanaeus* Jacq., Enum. Syst. Pl. 16. 1760.

Lectotype: Commelin, Horti Med. Amstelod. 1: 141, t. 73.

Syn.: *Celtis aculeata* Sw., Prodr. 53. 1788, nom. illeg.

Woody vine or shrub with geniculate, scandent branches, modified axillary branches forming short recurved spines. Leaves with stipules linear, 2 mm long; petioles > 1 cm long; blades oblong to oblong-elliptic, 5-12 x 2.5-6 cm, apex acute or short acuminate, base rounded, truncate or subcordate, usually asymmetrical, crenate-serrate at least above middle, with 1 strong pair of basal arcuate veins. Staminate flowers yellow, in much branched cymes; pistillate flowers in few-flowered cymes. Drupes globose, 6-10 mm in diameter, blue-black; styles often persisting.

GENERAL DISTRIBUTION: United States, Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Les Saintes!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Barbados!.

COMMON NAMES: Cockspur, croca chien, gratte-jambe.

NOTE: A common plant in dryland areas, flowering with the developing leaves.

TREMA Lour.

Trema Lour., Fl. Cochinch. 539, 562. 1790.

Unarmed trees or shrubs; branches flat, distichous. Leaves with stipules linear to lanceolate; blades sharply serrate, scabrous above, with pair of basal arcuate veins. Inflorescences axillary, cymose; sepals valvate; ovary sessile, compressed, stigmas 2, undivided. Drupes ovoid, compressed, endocarp rugose.

TYPE SPECIES: *Trema cannabina* Lour.

A genus of about 30 species in the tropics and subtropics.

KEY TO THE SPECIES

- Leaves 7-15 cm long, apices long acuminate *T. micrantha*
Leaves to 6 cm long, apices short pointed *T. lamarkiana*



FIGURE 10. *Celtis iguanaea*: habit, x 0.7.

Trema lamarckiana (Roemer & Schultes) Blume, Mus. Bot. 2: 58. 1856.

FIGURE 11.

Basionym: *Celtis lamarckiana* Roemer & Schultes, Syst. Veg. 6: 311. 1820.

Type: Martinique, *Martin s.n.*

Syn.: *Sponia lamarckiana* (Roemer & Schultes) Decne., Nouv. Ann. Mus. Hist. Nat. 3: 498. 1834.

Celtis lima Lam., Encycl. 4: 140. 1797, not Sw. (Type: Martinique, *Martin s.n.* (holotype, P).)

Trema lima authors, not Blume, 1856.

Tree to 10 m tall; branches strigose pubescent. Leaves with stipules 2 mm long; petioles 3-4 mm long; blades ovate-lanceolate, 4-6 x 1.5-2.5 cm, apex acute to acuminate, base rounded, slightly asymmetrical, margin sharply serrate to base, upper surface scabrous. Inflorescences barely exceeding petioles; flowers green-yellow. Drupes 3 mm long, pink.

GENERAL DISTRIBUTION: Florida, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica!, Martinique!, St. Vincent!

COMMON NAMES: Orme petites feuilles, caca-ravet.

Trema micrantha (L.) Blume, Mus. Bot. 2: 58. 1856.

Basionym: *Rhamnus micrantha* L., Syst. Nat. ed. 10, 2: 937. 1759.

• Lectotype: P. Browne, Civ. Nat. Hist. Jamaica, t. 12. 1756.

Syn.: *Celtis micranthus* (L.) Sw., Prodr. 53. 1788.

Sponia micrantha (L.) Decne., Nouv. Ann. Mus. Hist. Nat. 3: 498. 1834.

Celtis lima Sw., Prodr. 53. 1788. (Type: Jamaica, Sloane (BM).)

Celtis mollis Humb. & Bonpl. ex Willd., Sp. Pl. 4: 996. 1805. (Type: In America australi, *Humboldt 359* (B-WILLD; IDC 7440. 1379: III. 2, photo!)).

Sponia mollis (Willd.) Decne., Nouv. Ann. Mus. Hist. Nat. 3: 498. 1834.

Tree to 18 m tall; branches arching, distichous, strigose. Leaves with stipules 2 mm long; petioles 8-10 mm long; blades oblong-lanceolate to ovate-lanceolate, 6-15 x 2.5-5 cm, apex long attenuate-acuminate, base asymmetrically rounded or subcordate, margin minutely serrate, scabrous above, basal pair of veins arcuate. Inflorescences twice length of petiole. Flowers greenish-yellow. Drupes 3 mm long, orange-red.

GENERAL DISTRIBUTION: Southern United States, Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Petit orme, bois de l'orme, orme-petites feuilles.



FIGURE 11. *Trema lamarckiana*: habit, x 0.6. Inset: lower leaf and surface detail.

MORACEAE

MORACEAE Link, Handbuch 2: 444. 1831.

Trees or shrubs, rarely herbs (*Dorstenia*) sometimes climbing, sometimes hemiepiphytic as "strangler figs," sometimes with adventitious aerial roots forming pillar roots as "banyan figs," usually with milky latex; monoecious with sexes in same or different inflorescences or dioecious; axillary branches occasionally modified as thorns. Stipules present, lateral, or amplexicaul, often large, mostly caducous, if fully amplexicaul then leaving a circular scar. Leaves alternate, petiolate; blades entire, dentate, or variously lobed, sometimes dimorphic. Flowers small, in amentlike spikes, or capitate, or on a flat or lobed receptacle or on inner surface of a globular closed syconium; staminate perianth 2- or 4-lobed or wanting, stamens 1, 2 or 4, opposite perianth lobes; pistillate flowers with 3- to 5-lobed perianth, often tubular, ovary superior, mostly 1-celled, styles or stigmas 1 or 2, capitate or elongate, ovule 1, pendulous or subbasal in *Cecropia*. Fruit a syncarp of variously modified receptacles with 1, few or numerous small or large drupes or achenes; seeds small or large.

TYPE GENUS: *Morus* L.

A family of 53 genera and some 1400 species, mostly of the tropics and subtropics, but some temperate.

We express our appreciation to Dr. C. C. Berg for his careful revision and additions to our earlier manuscript.

CULTIVATED TAXA

Ampalis mauritiana (Jacq.) Urban (Basionym: *Morus mauritiana* Jacq.) was once cultivated on Martinique.

Brosimum alicastrum Sw. A single collection, H. H. & G. W. Smith from St. Vincent, may have been made from a tree once cultivated in the botanical garden. Anderson introduced *Brosimum guianense* (Aublet) Huber to the garden from Guiana. No specimens have been found for comparison.

Broussonetia kaemperi Sieber was cultivated at the St. Pierre Botanical Garden, Martinique.

Broussonetia papyrifera Vent. has been cultivated on Guadeloupe, Martinique and Barbados.

KEY TO THE GENERA

1. Plants herbaceous *Dorstenia*
1. Plants woody.
 2. Leaf blade peltate, radially incised *Cecropia*
 2. Leaf blade basally attached, entire, pinnately or palmately incised.
 3. Flowers borne in syconia, inside a globular closed receptacle *Ficus*
 3. Flowers not borne in syconia.
 4. Stamens 1 or 2; pistillate flowers +/- connate or immersed in receptacle.
 5. Staminate flowers naked in bivalved or cupshaped inflorescences; pistillate flowers many and connate, in discoid capitate and involucre inflorescences (without peltate bracts); lateral branches self-pruning *Castilla*
 5. Plants without this combination of characters.
 6. Staminate flowers (with or without a reduced perianth and 1 stamen) on, and pistillate flowers (1 to few) immersed in, a subglobose or discoid receptacle with numerous peltate bracts; fruit globose, 1.5 cm dia.; leaves entire. (FIGURE 18) *Brosimum*
 6. Staminate flowers with a tubular perianth and 1 stamen, in patent cylindrical or +/- clavate inflorescences with thick stalk, peduncle; pistillate flowers numerous and small in globose or cylindrical inflorescences at least 15 cm in dia.; fruits much larger; leaves pinnately incised or inflorescences partly cauliflorous *Artocarpus*
 4. Stamens 4; pistillate flowers free.
 7. Trees, especially when young, with spines; without +/- distinct scaly lateral buds; apices of shoots not shed; inflorescences also on main shoots; sepals and bracts with immersed yellow glands *Maclura*
 7. Trees without spines; with +/- distinct scaly lateral buds; apices of shoots shed; inflorescences mainly on lateral branches; tepals without yellow immersed glands.
 8. Sepals of staminate flowers valvate; stigmas 1 or if 2 then very unequal in length *Broussonetia*

8. Sepals of staminate flowers imbricate; stigmas 2, equally long
 *Morus*

ARTOCARPUS J. R. & G. Forster

Artocarpus J. R. & G. Forster, Char. Gen. Pl. 101. 1776, nom. cons.

Generally large trees with milky juice; monoecious. Stipules amplexicaul, generally large. Leaves large, coriaceous, pinnately lobed or entire. Staminate flowers in stout cylindrical spikes, perianth 2- to 4-lobed, stamen 1, pistillate rudiment wanting; pistillate flowers in axillary terminal or cauliflorous subglobose to ellipsoid heads, perianth tubular, ovary sessile, style entire or bilobed. Fruit a large syncarp, oblong, cylindric or globose, often with soft protuberances.

TYPE SPECIES: *Artocarpus communis* J. R. & G. Forster = *Artocarpus altilis* (Parkinson) Fosb.

A genus of 47 species mostly of Southeast Asia and Indomalesia.

CULTIVATED TAXA

Artocarpus lakoocha Roxb. was reported by Duss as *A. laecucha* Roxb. and by Stehlé as *A. lacoutcha* Roxb.; it was once cultivated in the botanical garden at St. Pierre on Martinique.

Artocarpus odoratissimus Blanco was cultivated in the botanical garden on Dominica, as annotated by Jarrett.

KEY TO THE SPECIES

- Fruit cauliflorous; leaves entire *A. heterophyllus*
 Fruit axillary on branches; leaves pinnately lobed *A. altilis*

Artocarpus altilis (Parkinson) Fosb., J. Wash. Acad. Sci. **31**: 95. 1941.

FIGURE 12.

Basionym: *Sitodium altile* Parkinson, J. Voy. South Seas 45. 1773.

Type: Not determined.

Syn.: *Radermachia incisa* Thunb., Kongl. Vetensk. Acad. Handl. **37**: 254. 1776. (Type: Java, Thunberg s.n. (UPS).)

Artocarpus incisa (Thunb.) L. f., Suppl. Pl. 411. 1782.

Artocarpus communis J. R. & G. Forster, Char. Gen. Pl. 102. 1776. (Type: Country unknown, Forster s.n. (BM).)

Artocarpus incisa var. *non-seminifera* Duss, Fl. Phan. Antill. Franç. 155. 1897. (Type: None designated from syntypes and references cited.)

Artocarpus incisa var. *seminifera* Duss, Fl. Phan. Antill. Franç. 156. 1897. (Type: No specimens cited.)

Large tree to 25 m tall; trunks 2 m in diameter. Petioles to 4 cm long; blades oblong in outline, 30-90 x 20-45 cm, deeply pinnately lobed, lobes acuminate, apex acuminate, base cuneate, pubescent or scabrous to glabrate. Staminate



FIGURE 12. *Artocarpus altilis*, x 0.4.

spikes club-shaped, pedunculate, 25-40 cm long, 2-3 cm thick, white or cream; pistillate heads globose, pedunculate, peduncles 6-10 cm long, green. Fruit to 30 cm in diameter, subglobose, oval or elliptic in outline, smooth or with soft protuberances; seeded and seedless forms in cultivation.

GENERAL DISTRIBUTION: Native of the Pacific tropics and now widely cultivated in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Probably found on all of the islands but poorly represented in herbaria. Montserrat!, Marie Galante!, St. Lucia!.

COMMON NAMES: Breadfruit, arbre à pain, fruit à pain, bwapan. The seeded variety called breadnut, seeded breadfruit, chataignier, or chataigne.

NOTES: The seeded breadfruit was introduced into Martinique by the French before 1790 according to Alexander Anderson. The seedless breadfruit is credited to Capt. William Bligh, but history commonly ignores the gardeners on board the *Bounty* and the *Providence* who actually did the work. Alexander Anderson on St. Vincent received the first plants delivered to the New World and his propagations were widely distributed. The *Providence* later delivered plants to Jamaica. For more information on the introduction of the breadfruit see R. A. Howard, in *Sci. Amer.* **188**: 88-90, 92, 94. 1953, and D. Powell, *Bull. Inst. Jamaica, Sci. Ser.* **15**(2): 1-70. 1973.

Although the tree never fulfilled the original hopes of a major food source, the fruit is still eaten on all of the islands. The lumber is highly valued for construction and the manufacture of wooden objects such as bowls, trays, etc. About five "varieties" differing in the size and shape of the fruit, and in their texture when cooked, can be distinguished on St. Vincent and other islands. Local residents believe the seeded type can be distinguished by a more copious pubescence of the leaves. The seeds are boiled or roasted and have a minimal use as a foodstuff.

***Artocarpus heterophyllus* Lam., *Encycl.* **3**: 209. 1789.**

Type: Mauritius, *Commerson s.n.* (P-JU; IDC 6206. 1212: III. 2-4, photo!).

Syn.: *Artocarpus integra* of many authors, not (Thunb.) Merrill, 1917.

Artocarpus integrifolius of many authors, not L. f., 1781.

Large tree of 15 m. Leaves with petioles 2-5 cm long; blades obovate-elliptic, elliptic or oval, 5-25 x 3.5-12 cm, apex obtuse or short acuminate, base cuneate, glabrous, entire; juvenile leaves or those of adventitious shoots often with 1 or 2 pairs of lateral lobes. Inflorescences primarily cauliflorous, bracteate or on leafy short-shoots; staminate inflorescence clavate or cylindrical, 3-7 cm long; pistillate inflorescence globular to cylindrical. Mature fruits massive, 30-100 cm long, 15-50 cm in diameter, cylindrical, covered with firm obtuse protuberances, yellow to brown in color; endocarp hard and surrounded by gelatinous layers; seeds oblong ellipsoidal, 3 cm long, 1.4-2 cm in diameter.

GENERAL DISTRIBUTION: Native to India but now widely cultivated in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!

COMMON NAMES: Jack fruit, jacquier, jak fruit, chataynn kouli.

NOTES: Optimistically introduced as a tree fruit with edible seeds but not observed in use in the Lesser Antilles. The type was a cultivated tree introduced to Mauritius.

CASTILLA Sessé

Castilla Sessé *in* Cerv., Gac. Lit. Mexico, Suppl. 7. 1794.

Tree with copious milky sap; monoecious. Stipules fully amplexicaul, caducous. Leaves distichous, short-petiolate; blades large, entire or denticulate. Receptacles of pistillate flowers discoid, flat, or cupular; receptacles of staminate flowers mostly bivalvate with reniform valves, sometimes cupshaped or funnelform, usually borne below leaves, surrounded by imbricate bracts. Staminate perianth wanting; stamens several, scattered among bractlets; pistillate perianth tubular, 3- to 5-lobed. Fruits enclosed in accrescent fleshy perianth.

TYPE SPECIES: *Castilla elastica* Sessé.

A genus of 3 species of tropical America. The generic name has been spelled *Castilloa* by many authors.

Castilla elastica Sessé *in* Cerv., Gac. Lit. Mexico, Suppl. 7. 1794. FIGURE 13.

Type: Not determined.

Often a large tree, branches pilose. Petioles stout, 1-2.5 cm long; blades oblong or elliptic-oblong, 20-45 x 8-15 cm, apex abruptly acuminate, base shallowly cordate, scabrous above, hirtellous or velutinous below. Staminate flower clusters often stalked; pistillate receptacles subsessile, to 5 cm in diameter. Mature fruits enclosed by red or orange-red perianth, 2 cm long.

GENERAL DISTRIBUTION: Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Persisting after cultivation or escaped. Montserrat!, Guadeloupe!, St. Lucia!

NOTES: The plant was introduced as a source of rubber but is no longer tapped for latex.

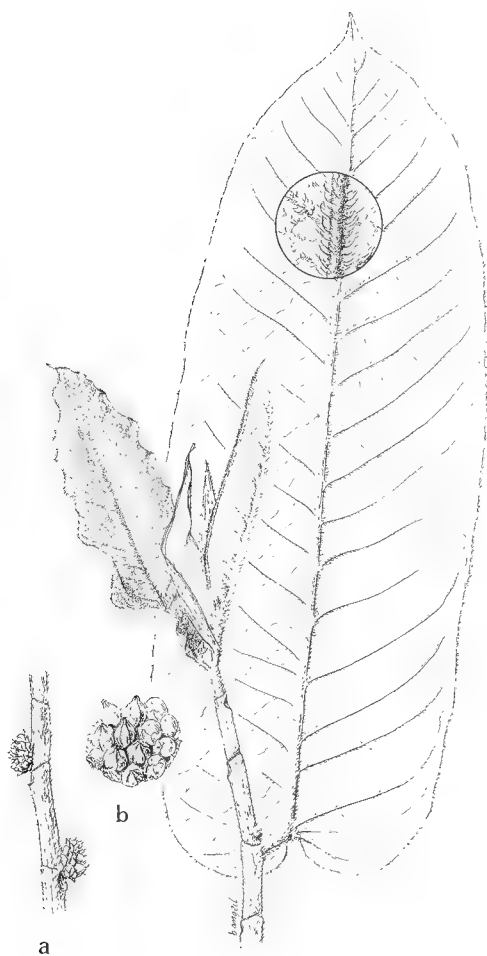


FIGURE 13. *Castilla elastica*, x 0.4: a, stem and inflorescences; b, cluster of fruit.

CECROPIA Loefl.

Cecropia Loefl., Iter. Hispan. 272. 1758, nom. cons.

Trees without milky juice, often with stilt roots and sparingly branched; dioecious; branches hollow, septate and fragile. Stipules large, connate, caducous. Leaves with petioles elongate; blades peltate and radially incised; in juvenile plants blades basally attached, entire to palmately lobed; commonly white-tomentose below. Inflorescences crowded cylindrical spikes clustered at ends of axillary peduncles and each with a spathe-like caducous bract; pistillate spikes fewer than staminate. Perianth tubular, stamens 2; style short, stigma fimbriate. Fruit an achene enclosed within the persistent perianth; seed small.

TYPE SPECIES: *Cecropia peltata* L.

A genus of 70 to 80 species of tropical America. C. C. Berg (in Taxon 27: 39-44. 1978) has proposed a new family Cecropiaceae with *Cecropia* Loefl. as the type genus.

Cecropia schreberiana Miq. in C. Martius, Fl. Bras. 4(1): 150. 1853.

FIGURE 14.

Type: Specimen in Herb. Schreber (holotype, v).

Syn.: *Cecropia antillarum* Snethl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 364. 1923. (Type: Santo Domingo, *Fuertes* 78 (B).)

Cecropia urbaniana Snethl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 366. 1923. (Type: Guadeloupe, *Duss* 3261 (B).)

Cecropia sericea Snethl., Notizbl. Bot. Gart. Berlin-Dahlem 8: 368. 1923. (Type: Haiti, *Buch* 99 (B).)

Tree to 20 m tall, stilt roots commonly well developed. Stipules red to white, conspicuous. Leaves with petioles to 30 cm long; blades orbicular in outline, 30-40 cm in diameter, 7- to 9-lobed, dark green above, densely white-tomentose below. Staminate spikes to 24, cylindrical to 10 cm long; peduncles 4-6 cm long, secondary peduncles 5 mm long; pistillate spikes 4 or 6, to 8 cm long, 1-3.2 cm thick, peduncles 3-5 cm long.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada, Barbados.

COMMON NAMES: Trumpet, trumpet tree, bois trompette, bois-trompette, bois canot, bois canon.

NOTES: Occasional in dense wooded areas but aggressive and abundant in clearings. No basal petiolar cushions have been observed in Lesser Antillean plants and no biting ants (characteristic of most of the South American species) have been encountered.

The Lesser Antillean plants have been referred to *C. peltata* L. which is common in Central America and northern South America and occurs in Jamaica. *C. schreberiana* differs in the presence of brown, instead of white, pith, in type



FIGURE 14. *Cecropia schreberiana*: a, habit with inflorescences, x 0.2; b, pistillate inflorescences, x 0.2; c, staminate inflorescences, x 0.2; d, section of stem showing internodal cavities and nodal plates.

of hairs, and in the perianth of the pistillate flowers, where the apex is without white arachnoid indument.

DORSTENIA L.

Dorstenia L., Sp. Pl. 1: 121. 1753.

Acaulescent or short-stemmed herbs with some milky juice; monoecious. Stipules lateral, persisting. Leaves basal or clustered, entire or lobed, sometimes peltate. Flowers embedded in long-peduncled, flat, entire or lobed receptacle; staminate flowers with small perianth, stamens 1 to 3; pistillate flowers deeply embedded in receptacle, perianth tubular, ovary enclosed, style bifid. Fruit a drupelet from which seed is ejected.

TYPE SPECIES: *Dorstenia contrajerva* L.

A genus of 150 species mainly in tropical Africa and America.

NOTES: *Dorstenia psilurus* Welw. (determined as *Dorstenia massoni* Bureau from Africa) was once cultivated on Martinique.

Dorstenia contrajerva L., Sp. Pl. 1: 121. 1753.

FIGURE 15.

Type: Not designated.

Syn.: *Dorstenia quadrangularis* Stokes var. *pinnatifida* Stokes, Bol. Mat. Med. 4: 341. 1812. (Syntypes: St. Vincent, *Anderson s.n.* and *Smeathman s.n.*)

Herb with thick short rough stem. Petioles 0.8-2.5 cm long; blades variable in size and dissection, oblong-ovate, deltoid-ovate or orbicular in outline, 6-20 x 22 cm, entire or deeply pinnately to palmately lobed, glabrous or pubescent. Peduncles 7-25 cm long; receptacles flat, curved or undulate, quadrangular or lobed, to 3.5 cm long and wide. Fruits few; seeds yellowish.

GENERAL DISTRIBUTION: Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Herbe-chapeau.



FIGURE 15. *Dorstenia contrajerva*: habit, x 0.35.

FICUS L.

Ficus L., Sp. Pl. 2: 1059. 1753.

Trees or shrubs, some scandent, some hemi-epiphytic as stranglers, often with abundant aerial adventitious roots, sap milky; monoecious or gynodioecious. Stipules membranous, small to elongate, caducous, often brightly colored. Leaves rarely dimorphic, petiolate and leathery. Staminate, pistillate and gall flowers borne on inner surface of globose, fleshy receptacle or syconium with a small opening (ostiole) closed by overlapping spirally arranged scales; syconia subtended by involucre of 2 or 3 small bracts; stamens 1 or 2. Fruits small achenes crowded in receptacle.

TYPE SPECIES: *Ficus carica* L.

A genus with 750 to 800 species mainly in the tropics of Asia, Australasia, Africa and America. For more information see G. DeWolf, in Ann. Missouri Bot. Gard. **47**: 146-165. 1960.

CULTIVATED SPECIES

Ficus altissima Blume was recently cultivated on Dominica.

Ficus aspera G. Forster (as *F. canoni* N.E. Br. and *F. parcelli* Veitch) a plant with variegated leaves, has been cultivated in several botanical gardens.

Ficus bengalensis L. was recently cultivated on Montserrat.

Ficus catappifolia Kunth & Bouché, once cultivated in Europe, was thought to have come from Martinique (Warb. in Urban, Symb. Antill. **3**: 491. 1903). It is known from Venezuela, the Guianas and Brazil. Anderson reported that he introduced this plant to the St. Vincent Botanical Garden from the Guianas.

Ficus metallica Horton ex Duss (Fl. Phan. Antill. Franç. 155. 1897) is presumably a cultivar of *Ficus elastica* Roxb. ex Hornem. once found on Martinique. This collection was referred to the synonymy of *F. canoni* by Warburg.

Ficus natalensis Hochst. from West Africa was cultivated on Guadeloupe as *Ficus triangularis* Warb.

KEY TO THE SPECIES

1. Climbing plants adhering to walls by nodal adventitious roots; leaves dimorphic, juvenile leaves distichous and appressed, flowering shoots with alternate leaves and without adventitious roots bearing pedunculate obovoid figs 3-5 cm long, 3-4 cm dia. *F. pumila*
1. Trees, terrestrial shrubs, or hemiepiphytes as strangler figs.
 2. Leaves palmately lobed; shrubs or small trees cultivated for fruit *F. carica*
 2. Leaves entire; syconia mostly inedible.
 3. Syconia sessile or subsessile.
 4. Leaf blades usually < 10 cm long; stipules < 1 cm long and petioles < 3 cm long.
 5. Blades with distinctly acuminate apex; syconia ripening orange, 1.5-2.5 cm dia. *F. benjamina*
 5. Blades with shortly and faintly acuminate apex; syconia ripening blackish, 5-6 mm dia. *F. microcarpa*

4. Leaf blades usually > 10 cm long; stipules > 1 cm long and/or petiole > 3 cm long.
6. Lateral veins < 10 pairs, conspicuous; stipules < 5 cm long; syconia subglobose, 1.5-2 cm dia., puberulent; basal bracts 2, 5-10 mm long, persistent *F. nymphaeifolia*
6. Lateral veins > 10 pairs, scarcely distinguishable; stipules > or = 8 cm long; syconia ellipsoid, rarely seen on Lesser Antillean plants; basal bracts 3, ca. 3 mm long, mostly caducous; cultivated *F. elastica*
3. Syconia pedunculate.
 7. Basal bracts 3; syconia usually solitary in leaf axils; stipules 3.5-10 cm long *F. insipida*
 7. Basal bracts 2; syconia usually in pairs in leaf axils or in clusters below leaves; stipules much shorter.
 8. Basal bracts 5-10 mm long; syconia 1.5-2 cm dia. *F. nymphaeifolia*
 8. Basal bracts to 3 mm long; syconia < 1.5 cm dia.
 9. Stipules brown to yellowish sericeous, pubescent or subhirsute; ostiole of syconium surrounded by usually +/- distinctly 3-lobed rim *F. trigonata*
 9. Stipules glabrous or sparsely and minutely puberulous; ostiole of syconium not surrounded by rim.
 10. Syconia in clusters on minute short shoots usually below leaves; pink with deep red spots; leaves darkening on drying *F. guianensis*
 10. Syconia in pairs in leaf axils.
 11. Syconia spotted; petioles < 6 cm long; leaf bases usually rounded, cordate or obtuse *F. citrifolia*
 11. Syconia not spotted; petioles < 1-1.5 cm long; leaf bases usually acute to cuneate to subobtus *F. americana*

***Ficus americana* Aublet, Hist. Pl. Guiane 2: 952. 1775.**

FIGURE 16.

Type: Plumier, Nov. Pl. Amer. t. 132, f. 2. 1756.

Syn.: *Ficus perforata* L., Pl. Surin. 17. 1775. (Type: Plum., Nov. Pl. Amer. t. 132, f. 2. 1756.)

Ficus omphalophora Warb. in Urban, Symb. Antill. 3: 466. 1903. (Type: None selected, many specimens and islands cited.)

Ficus pertusa of many authors, not L.f. (1781).

Tree to 12 m tall, stems often lacking milky latex. Stipules 7-9 mm long. Leaves with petioles 4-10 mm long; blades elliptic to obovate, 2-8 x 1-4 cm, apex acute, obtuse or abruptly short apiculate, base cuneate to rounded, veins many, uniform. Syconia axillary, paired, on peduncles 2-5 mm long, globose, 3-7 mm dia., red when mature.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: White fig, figuier, figuier petites feuilles, aralie-petite cerise, multiplicant.



FIGURE 16. *Ficus americana*: habit, x 0.9.

Ficus benjamina L., Mant. Pl. 129. 1767.

Syntypes: Rheede, Hort. Malab. t. 26; Rumphius, Herb. Amboin. t. 90.

Erect trees to 10 m tall, often wider than tall, occasionally with hanging adventitious roots. Stipules 1 cm long, puberulent or glabrate. Leaves with petioles 2-3 cm long; blades oblong, elliptic or oval, 4-11 x 2-6 cm, apex acuminate or cuspidate, base rounded or cuneate, veins numerous and uniform. Syconia sessile, single, subglobose, 1.5-2.5 cm dia., orange.

GENERAL DISTRIBUTION: Native of tropical Asia introduced as a specimen or shade tree in many tropical countries.

DISTRIBUTION IN LESSER ANTILLES: the Grenadines!, Grenada!.

NOTES: Only the orange-fruited var. *nuda* (Miq.) Barrett (as var. *comosa* (Roxb.) Kurz) has been seen, although red-fruited forms are known to some local residents.

Ficus carica L., Sp. Pl. 2: 1059. 1753.

Type: Not designated.

Much-branched shrub or small tree to 3 m tall. Stipules 1-1.2 cm long. Leaves with petioles 9-13 cm long; blades palmately 5- to 7-lobed, suborbicular to oval in outline, 20-30 x 20-30 cm, rough pubescent, apex acute, base cordate, sinuses broad. Syconia pyriform, red-purple when mature.

GENERAL DISTRIBUTION: Native of tropical Asia but cultivated in tropical and subtropical areas.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Martinique, Barbados!.

COMMON NAMES: Figuier, figuier Europe.

Ficus citrifolia Miller, Gard. Dict. ed. 8, no. 10. 1768.

. Lectotype: One of many specimens grown at the Chelsea Physic Garden (chosen by Dandy (BM-BANKS)).

Syn.: *Ficus brevifolia* Nutt., N. Amer. Sylv. ed. 1, 2: 3. 1842. (Type: Florida, Key West, Blodgett s.n.)

Ficus laevigata M. Vahl, Enum. Pl. 2: 183. 1805. (Type: Ind. Occ., West s.n. (c).)

Ficus lentiginosa M. Vahl, Enum. Pl. 2: 183. 1805. (Type: Montserrat, Ryan s.n. (c).)

Ficus lentiginosa M. Vahl var. *imrayana* Domin, Acta Bot. Bohem. 9: 48. 1930. (Type: Dominica, Imray 290.)

Ficus pedunculata M. Vahl, Enum. Pl. 2: 183. 1805. (Type: Cultivated plant, Hort. Kew.)

Ficus populifolia Desf., Tabl. École Bot. ed. 1: 209. 1804, nom. subnud. (Type: Specimen in Jardin Botanique, Paris.)

Ficus populnea Willd., Sp. Pl. 4(2): 1141. 1806, nom. illegit.

Tree to 16 m tall or rarely small shrub on rocks, often with many aerial roots. Stipules 5-30 mm long, narrowly deltoid, glabrous. Leaves with petioles 0.7-7.0

cm long; blades variable in shape and size, lanceolate, ovate, elliptic-lanceolate, oblong or obovate, 2.5-20 x 1.5-12 cm, apex acute to acuminate, base rounded, truncate, subcuneate or subcordate. Syconia borne among leaves, generally paired, globose or depressed globose, 6-12 mm in diameter, red to yellow or yellow with red spots; peduncles 2-6 mm long.

GENERAL DISTRIBUTION: Florida, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Strangler fig, bearded fig, figuier, figuier blanco, figuier maudit.

NOTES: Warburg (*in Urban, Symb. Antill.* 3: 453-491. 1903) presented a treatment of *Ficus* in the Antilles in which he recognized *Ficus populnea* Willd. with four varieties and twenty-one new subvarieties. Domin (*Acta. Bot. Bohem.* 9: 46-48. 1930) accepted as the correct name *Ficus lentiginosa* M. Vahl but questioned the distinctness of Warburg's subspecific taxa, although he described a new variety and made one combination. Stehlé and Quentin (*Fl. Guad.* 2(1): 180-181. 1937) accepted *Ficus laevigata* M. Vahl, a species that Warburg had reduced to the level of variety, and to it transferred six of Warburg's subvarieties. *Ficus citrifolia* Miller is generally accepted as a polymorphic species, and the combinations, bibliography and distributions of Warburg or Stehlé and Quentin are not repeated here. DeWolf, in a broad concept, attributes this species to Mexico, Central America and South America.

Ficus aurea Nutt., attributed to Guadeloupe by Questel, was questioned by Fournet (*Fl. Illus. Phan. Guad. Mart.* 962. 1978); the few specimens so annotated by Stehlé, which I have seen, are referred to *F. citrifolia*.

***Ficus elastica* Roxb. ex Hornem., Hort. Bot. Hafn. Suppl. 7. 1819.**

Type: Not designated.

Tree 12 m or more, branches long and wide-spreading, aerial roots abundant. Stipules 8 cm long or more, often brightly colored. Leaves with petioles 2.5-10 cm long; blades elliptic, 15-30 x 5-12 cm, apex abruptly acute or apiculate, base rounded, smooth, dark green and shiny above, veins numerous, uniform. Syconia sessile, abortive on Lesser Antillean plants.

GENERAL DISTRIBUTION: Native of tropical Asia; introduced and cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Kitts!, Montserrat!, Guadeloupe!, St. Lucia!, Grenada!, Barbados!.

NOTES: A few large established trees have been seen in cultivation near old houses but seem not to fruit. Younger plants have been grown as ornamentals around some of the new hotels on other islands. Pot culture is also seen. On Montserrat a commercial planting for propagation of rooted cuttings has developed as an export trade.

Ficus guianensis Ham., Prodr. Pl. Ind. Occid. 62. 1825.

Type: French Guiana, *Martin s.n.* (Hb. Desvaux, P).

Syn.: *Ficus clusiifolia* Schott in Sprengel, Syst. Veg. 4, Cur. Post. 409. 1827. (Type: Brazil, *Schott s.n.* (B).)

Ficus grenadensis Warb. in Urban, Symb. Antill. 3: 481. 1903. (Type: Grenada, *Eggers 6138* (B).)

Tree to 20 m tall. Stipules to 1 cm long. Leaves with petioles 1-1.5 cm long, stout; blades elliptic, oblong or obovate-elliptic, 6-11 x 3-6 cm, apex rounded and abruptly apiculate, base narrowed and rounded. Syconia usually in clusters, usually below leaves, globose, 6-7 mm in diameter, pale pink with red spots, ostiole prominent; peduncles 3-4 mm long.

GENERAL DISTRIBUTION: South America.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada!.

COMMON NAMES: Figuier.

NOTES: All specimens have dried a dark color on the upper surface.

Ficus insipida Willd., Sp. Pl. 4(2): 1143. 1806.

Type: Venezuela, *Bredemeyer 32* (B).

Syn.: *Ficus krugiana* Warb. in Urban, Symb. Antill. 3: 487. 1903. (Lectotype: Martinique, *Isert 87*.)

Large tree, 30 m tall with buttresses. Stipules lanceolate, 3.5-10 cm long. Leaves with petioles 2-5 cm long; blades broadly lanceolate to elliptic, 4-40 x 3-15 cm, apex bluntly acute, base cuneate to rounded, slightly scabrous. Syconia solitary, globose, 1.5-3 cm in diameter, yellowish-green; ostiole flat to mammillate; peduncles 1-1.5 cm long.

GENERAL DISTRIBUTION: Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Vincent!.

COMMON NAMES: Figuiera agoutia, figuier maudit.

NOTES: DeWolf (*in Elliottia* 4: 12. 1965, and in Hooker's Icon. Pl. 37: 7, 14, t. 3634. 1967) reported *Ficus maxima* Miller from the Lesser Antilles, citing collections from Guadeloupe, Dominica, Martinique and St. Vincent. Two of the collections he also cited under *F. insipida*. *Ficus maxima* Miller, as interpreted from material annotated by DeWolf from Central America, does not occur in the Lesser Antilles unless as cultivated plants.

"*Ficus laurifolia* Lam.," and "*Ficus martinicensis* Willd." were cited by Duss (Fl. Phan. Antill. Franç. 153. 1897) with the collections *Duss 2194* and *1412*. No duplicates have been seen but the Duss material was referred to *F. krugiana* Warb. by Warburg in Urban, Symb. Antill. 3: 487, 488. 1903). They may be *Ficus ovata* M. Vahl from Africa.

Ficus microcarpa L. f., Suppl. Pl. 442. 1782.

Type: Java, *Thunberg s.n.*

Syn.: *Ficus retusa* of various authors, not L., 1767.

Ficus nitida of various authors, not Thunb., 1786.

Large trees to 30 m tall with slender aerial roots. Stipules 7-9 mm long. Leaves with petioles 5-10 mm long; blades elliptic, obovate to oval, 4.5-7.5 x 2-3.5 cm, apex acute, base obtuse, one basal pair of veins conspicuous and ascending. Syconia sessile, obovoid, 5-6 mm in diameter, red, purple or black.

GENERAL DISTRIBUTION: Native of tropical Asia, now grown in many tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, St. Lucia!, Barbados!.

COMMON NAMES: Evergreen, laurel fig.

NOTES: For an explanation of the confused nomenclature of this laurel fig see Corner, in Gard. Bull. Straits Settlement. **21**: 22. 1965.

Ficus nymphaeifolia Miller, Gard. Dict. ed. 8. 1768.

Type: Not designated.

Syn.: *Ficus urbaniana* Warb. in Urban, Symb. Antill. **3**: 459. 1903. (Type: No lectotype selected from the many syntypes cited.)

Tree to 12 m tall. Stipules 0.5-5 cm long, ciliolate. Leaves with petioles 2-8 cm long; blades broadly elliptic to oblong, 8-25 x 6-15 cm, coriaceous, glabrous, apex rounded, base rounded to subcordate, lateral veins 7 to 9 pairs. Syconia axillary, sessile or on peduncles to 3 mm long, 1.5-2 cm in diameter when dry, minutely puberulous, basal bracts ca. 1 cm long, ostiolar bracts raised or plane.

GENERAL DISTRIBUTION: Central and South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, Saba, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Black fig, figuier, figure grand feuilles, banyan.

NOTES: Little, Woodbury and Wadsworth (Trees Puerto Rico **2**: 118. 1974) refer this material to the closely related *F. obtusifolia* Kunth, a species of continental America.

Ficus pumila L., Sp. Pl. **2**: 1060. 1753.

Type: Not designated.

Syn.: *Ficus repens*, hort., Gard. Chron. **2**: 716. 1880.

Climbing plant; juvenile branches appressed to walls and climbing by clusters of adventitious roots at nodes of slightly flattened stems; mature (fertile) branches developing from axillary buds, without adventitious roots, stems terete. Leaves of appressed stems distichous, with petioles 1-2 mm long; blades

oblong or ovate 2-3 x 1-1.5 cm; leaves of fertile stems with petioles 1-2.5 mm long; blades oblong or ovate, 3-8 x 2-5 cm, apex acute or rounded, base obtuse, rounded or cordate, generally hirtellose on distinctly reticulated veins of abaxial surface. Syconia solitary, pedunculate, obovoid, 5-7 cm long, 3-5 cm in diameter, tapered to stalk at base, truncate at apex, dark red-purple when "mature" but not setting fertile seeds.

GENERAL DISTRIBUTION: Native of China or Japan introduced and cultivated in many tropical areas.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Kitts!, Montserrat!, Guadeloupe!, Barbados!.

COMMON NAME: Lierre.

Ficus trigonata L., Pl. Surin. 17. 1775.

- Type: Plum., Pl. Amer. t. 132, f. 1.

Syn.: *Ficus crassinervis* Desf. ex Willd., Sp. Pl. 4(2): 1138. 1806. (Type: Plant cultivated in Paris.)

Tree to 12 m tall; twigs puberulous to hirtellous. Stipules 0.8-1.3 cm long, brown to yellowish sericeous to subhirsute, caducous. Leaves with petioles 0.5-2 cm long, minutely puberulous, epidermis flaking off; blades elliptic to oblong, 2-13.5 x 1.3-7 cm, coriaceous, apex rounded to obtuse, base rounded to subcordate or to obtuse, glabrous. Syconia paired or solitary in leaf axils, globose, 0.8-1.3 cm in diameter when dry, glabrous, green, spotted or not; ostiole surrounded by usually distinctly 3-lobed rim; peduncles 0.2-0.4 cm long, minutely puberulous; basal bracts 2, 2-3 mm long, puberulous.

GENERAL DISTRIBUTION: Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Black fig, figuier, figure grand feuilles, banyan.

MACLURA Nutt.

Maclura Nutt., Gen. N. Amer. Pl. 2: 233. 1818., *nom. cons.*

Syn.: *Chlorophora* Gaudich. in Freyc., Voy. Uranie 509. 1830. (Type species: *Morus tinctoria* L. = *Maclura tinctoria* (L.) D. Don ex Steudel.)

Tree to 10 m tall with yellowish milky sap; dioecious; young shoots often densely armed with paired stout spines. Stipules caducous. Leaves petiolate, entire, toothed or moderately lobed in leaves on spiny branches, pinnately veined. Staminate flowers in dense spikes, perianth 4-parted, stamens 4, ovary rudimentary; pistillate flowers in axillary dense heads, perianth 4-parted; ovary oblique, style filiform or elongated. Fruit a globose syncarp, persistent perianth fleshy; achenes compressed and oblique.

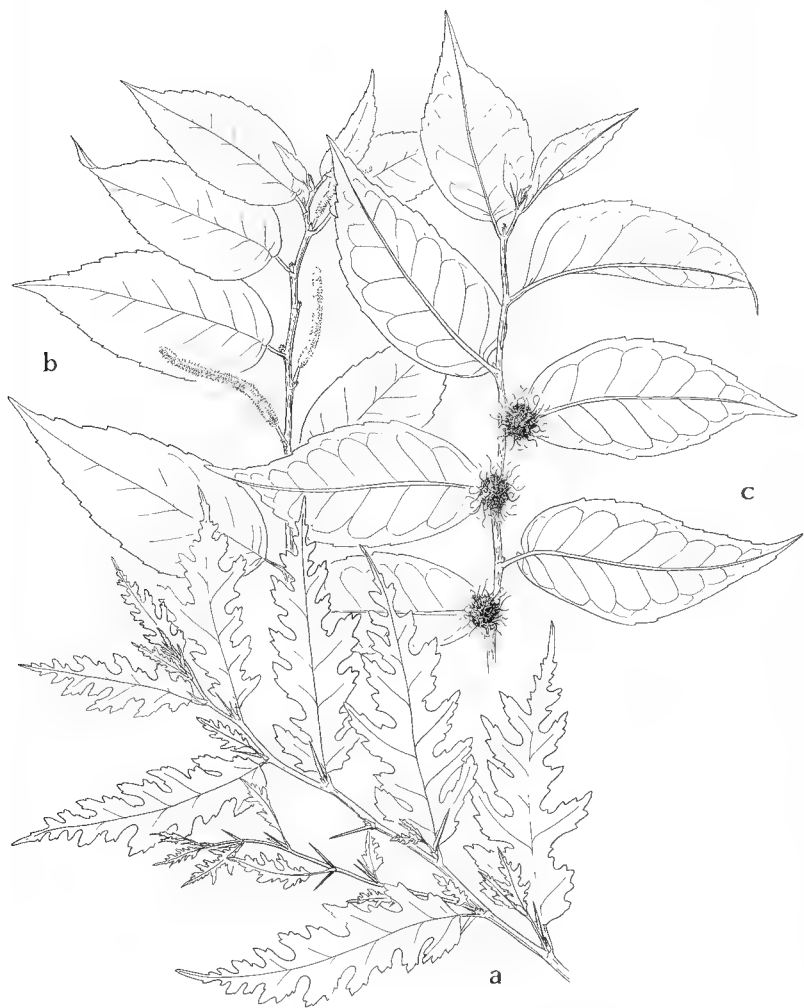


FIGURE 17. *Maclura tinctoria*: a, sterile spiny branch from young plant, x 0.4; b, branch with staminate inflorescences, x 0.42; c, branch with pistillate inflorescences, x 0.42.



FIGURE 18 (left). *Brosimum alicastrum*: habit, x 0.33; a, fruiting receptacle. FIGURE 19 (right). *Morus nigra*: habit, x 0.33.

TYPE SPECIES: *Morus aurantiaca* Nutt. = *Maclura pomifera* (Raf.) C. Schneider.

A genus of 10 species found in tropical America, Asia and Africa. For more information see R. C. Kaastra, in *Acta Bot. Neerl.* **21**(6): 657-670. 1972.

Maclura tinctoria (L.) D. Don ex Steudel, *Nomencl. Bot.* ed. 2, **2**: 87. 1841. FIGURE 17.

Basionym: *Morus tinctoria* L., *Sp. Pl.* **2**: 986. 1753.

Lectotype: Sloane, *Voy. Jamaica t.* **153**, f. 1.

Syn.: *Chlorophora tinctoria* (L.) Gaudich. ex Benth. & Hook., *Gen. Pl.* **3**: 363. 1880.

Maclura xanthoxyloides Endl. ex Duss., *Fl. Phan. Antill. Franç.* 159. 1897. (Type: Plum., *Pl. Amer. t.* **204**.)

Tree or shrub to 10 m tall, with arching, geniculate spiny branches. Leaves often distichous, with petioles 2-10 mm long; blades lanceolate, ovate-elliptic or elliptic, 5-12 x 1.5-5 cm, apex acuminate, base rounded, obliquely truncate or subcordate, coarsely dentate or young leaves deeply pinnately lobed. Staminate flowers in pendulous spikes 3-10 cm long; pistillate flowers in globose heads, to 1 cm in diameter. Fruits 1.2-1.4 cm in diameter, generally gray-green.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!, Grenada!, Barbados!.

COMMON NAMES: Bois d'orange, murier-poays, fustic tree.

MORUS L.

Morus L., Sp. Pl. 2: 986. 1753.

Deciduous, unarmed trees or shrubs; monoecious or dioecious. Stipules lateral, caducous. Leaves undivided or variously lobed, serrate or dentate, palmately 3- to 5-nerved. Flowers in pedunculate axillary pendulous spikes; calyx 4-parted, stamens 4; ovary sessile, stigmas 2. Fruit an ovoid compressed achene covered with succulent calyx, generally forming an ovoid or cylindrical syncarp.

TYPE SPECIES: *Morus nigra* L.

A genus of 10 to 12 species of northern temperate regions in North America, Africa and Malesia.

Morus nigra L., Sp. Pl. 2: 986. 1753.

FIGURE 19.

Type: Not designated.

Tree to 6 m tall; branches spreading. Leaves with petioles 2.6-4.5 cm long; blades variable in size and shape, usually broadly ovate, 10-17 x 5-12 cm, apex acute to acuminate, base truncate to subcordate, occasionally irregularly lobed, 3- to 5-nerved at base, margin coarsely serrate, pubescent on veins at least at base. Peduncles 1 cm long; staminate spikes to 2.5 cm long; fruiting spikes oblong 2-2.5 cm long, dark red.

GENERAL DISTRIBUTION: Widely distributed in temperate areas and cultivated in tropical and subtropical areas.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Mulberry, murier noir.

NOTES: Mulberries were introduced in an attempt at the culture of silkworms. The several species are difficult to distinguish and the few specimens currently from the Lesser Antilles are best assigned to *M. nigra*.

CANNABACEAE

by George W. Staples

CANNABACEAE Endl., Gen. Pl. 286. 1837, nom. cons.

"Cannabineae," "Cannabidaceae," "Cannabinaceae," "Cannabiaceae"

Annual or perennial, erect or climbing herbs with watery sap. Leaves alternate or opposite, petiolate, stipulate, simple or palmately lobed or divided. Stipules free or fused. Flowers unisexual, anemophilous; plants usually dioecious. Staminate flowers in panicles; sepals 5, imbricate; petals wanting; stamens 5, opposite sepals, anthers bilocular, eventually longitudinally dehiscent; ovary wanting. Pistillate flowers crowded into axillary spikes, subtended or enclosed by conspicuous bracteoles; perianth minute, enclosing ovary; stamens wanting; ovary superior, unilocular, stigma bifid; ovule one, pendulous. Fruit an achene covered by persistent perianth; embryo curved.

TYPE GENUS: *Cannabis* L.

A family with only two genera and 2-6 species, but of considerable economic importance. *Cannabis* is widespread in the tropical and temperate areas of the world, either as a cultivated crop or persisting from cultivation. A proposal (in Taxon 15: 211, 212. 1966) to reinstate one of the long-established orthographic variants for the family name was rejected at the Seattle Congress; we retain the conserved name Cannabaceae.

CANNABIS L.

***Cannabis* L., Sp. Pl. 2: 1027. 1753.**

Erect annual herb. Leaves opposite near base, alternate above, petiolate, palmately divided. Staminate flowers shortly pedicellate, in drooping axillary and terminal panicles. Pistillate flowers sessile in short erect spikes, each enclosed by a leafy bracteole. Achene ovoid, compressed, the thin fruit wall closely conforming to the seed, glabrous, covered with a "map-like" network of fine lines.

TYPE SPECIES: *Cannabis sativa* L.

Usually considered a monotypic genus with a single highly variable species. Alternately these variants have been accorded species rank, especially those occurring in Asia. *Cannabis* originated in central Asia, but it is now distributed worldwide in tropical and warm temperate regions. It has been widely cultivated as a source of bast fiber and a narcotic; plants escaped from cultivation have become established as weeds. The species has been occasionally reported in the West Indies.

***Cannabis sativa* L., Sp. Pl. 2: 1027. 1753.**

FIGURE 20.

• Lectotype: pistillate specimen, Hort. Cliff. 457 (BM, n.v.).

Erect, annual, dioecious herb 1-2(-5) m tall; often malodorous. Stem ridged or furrowed, scabrous, younger parts resinous dotted, older stems hollow. Stipules linear to narrowly triangular, free. Petioles 3-7.5 cm, pubescent. Leaves palmately divided; leaflets (3-)5-9(-11), sessile, lanceolate, 3-8(-15) x 0.25-2 cm, base cuneate, margins coarsely serrate, apex tapering acuminate, scabridulous above, puberulous below, yellow gland-dotted on both sides. Plants usually unisexual, rarely with staminate and pistillate flowers on the same individual. Staminate



FIGURE 20. *Cannabis sativa*, x 0.5.

inflorescence a minutely hairy, loose panicle; flowers greenish yellow; sepals oblong-elliptic, to 4 mm long; stamens pendulous. Pistillate inflorescence a few-flowered, compact, resin-dotted, axillary spike; flowers green; bracteole to 8 mm long; perianth inconspicuous; ovary globose, ca. 1 mm long; stigmas filiform, to 7 mm long. Achene broadly ovoid, compressed, 2.5 x 2-3.5 mm, glossy tan with paler lines.

GENERAL DISTRIBUTION: Originally native to central Asia, now nearly ubiquitous in warm temperate and tropical regions through introduction by man.

COMMON NAMES: Marijuana, ghanja, maryjane.

NOTES: Unsubstantiated reports indicate *Cannabis* occurs throughout the Lesser Antilles, but there are no vouchers available to document the distribution. Existing floras make no mention of this species as either cultivated or escaped on these islands. This may be due to the illicit nature of its cultivation for the narcotic resin, or to the brief persistence of plants escaped from cultivation.

URTICACEAE

by Elizabeth A. Kellogg

URTICACEAE A. L. Juss., Gen. Pl. 400. 1789, nom. cons. ('Urticae').

Herbs, shrubs or small trees, with or without stinging hairs; monoecious or dioecious. Stipules intrapetiolar, free or connate. Leaves simple, opposite or alternate, petiolate or not; cystoliths often present in epidermal cells. Inflorescences paired in leaf axils, sessile or pedunculate. Sepals 3, 4 or 5, free or connate; petals lacking; stamens opposite perianth lobes, inflexed in bud; pistillate flowers 2- to 4-merous; ovary single, superior, unilocular; stigma filiform or penicillate. Fruit an achene.

TYPE GENUS: *Urtica* L.

A family with a worldwide distribution, made up of 45 genera. For more information see N. Miller, J. Arnold Arbor. **52**: 40-68. 1971.

KEY TO THE GENERA

1. Leaves opposite *Pilea*
1. Leaves alternate.
 2. Inflorescences sessile, glomerulate.
 3. Plants herbaceous, trailing; stigma penicillate; pistillate flowers enclosed by 2 foliaceous bracts, 2-3.6 mm long *Roussetia*
 3. Plants erect herbs or shrubs; stigma filiform; pistillate flowers subtended by multiple chartaceous bracts, < 1.6 mm long.
 4. Erect herbs to 50 cm tall; leaves < 6.6 cm long; achene not enclosed in persistent perianth *Phenax*
 4. Arching shrubs to 8 m tall; leaves to 27.6 cm long; achene tightly enclosed in persistent perianth *Boehmeria ramiflora*
 2. Inflorescences pedunculate, paniculate.

5. Leaves densely snowy-white tomentose abaxially; occasional in cultivation *Boehmeria nivea*
5. Leaves glabrous or pubescent abaxially but not densely snowy-white tomentose.
 6. Inflorescences < 8.6 cm long, borne below leaves; stout herbs to trees to 8 m tall; pistillate perianth or rachis accrescent; stigma central, penicillate.
 7. Pistillate perianth 4-lobed, accrescent, succulent; leaves with stinging hairs; cystoliths punctate to bacilliform *Urera*
 7. Pistillate perianth absent, achene subtended by 2 bracts; rachis accrescent in fruit; leaves without stinging hairs; cystoliths linear, arranged radially in areoles *Gyrotaenia*
 6. Inflorescences borne with leaves near top of stem, to 20 cm long; herbs < 1 m tall; pistillate perianth not accrescent, membranaceous; stigma punctate on short, hooked style, laterally displaced *Laportea*

BOEHMERIA Jacq.

Boehmeria Jacq., Enum. Syst. Pl. 9. 1760.

Trees, shrubs, or robust perennial herbs, without stinging hairs; monoecious. Stipules free or only slightly connate, hyaline, 1-nerved. Leaves of our species alternate (elsewhere opposite), those of adjacent nodes more or less unequal, dentate; nerves 3, basal; cystoliths punctate, adaxial. Inflorescences glomerulate or glomerules arranged in panicles, axillary, paired; staminate flowers 4-merous; pistillate flowers lageniform, tightly investing ovary, 2- to 4-toothed; ovary sessile or short-stalked; stigma filiform, persistent. Achene 1, enclosed in persistent calyx.

TYPE SPECIES: *Boehmeria ramiflora* Jacq.

A genus of ca. 100 species, tropical and subtropical.

KEY TO THE SPECIES

- Leaves silvery pubescent below; robust woody herbs *B. nivea*
 Leaves green below; arching shrubs *B. ramiflora*

Boehmeria nivea (L.) Gaudich. in Freyc., Voy. Uranie 499. 1830.

Basionym: *Urtica nivea* L., Sp. Pl. 2: 985. 1753.

Type: Not designated.

Woody herb to 2 m tall, rhizomatous; young stems, leaves and inflorescences appressed-hirsute. Stipules lance-acuminate, 3-12 mm long; nerves thickened, raised, appressed-hirsute. Leaves with petioles 0.3-7.5 cm long; blades ovate, broadly ovate or lanceolate, 3.1-16.8 x 2.3-9.6 cm, sparsely puberulent adaxially, white tomentose abaxially, apex abruptly acute to acuminate, base cuneate, rounded or cordate, margin serrate. Inflorescences 2 to several, staminate inflorescences below, pistillate above, 2.3-7.5 cm long, persisting after leaves have fallen; axes sparsely pubescent, flowers in bracteate glomerules; bracts lanceolate to lance-ovate, 0.7-0.8 mm long. Pistillate perianth 0.7-1.3 mm long, sessile or with lower portion extended to a short pedicel; style 0.3-0.6 mm long. Achenes ca. 1 mm long.

GENERAL DISTRIBUTION: Native to tropical Asia; widely cultivated for fiber.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, St. Lucia!, St. Vincent!.

NOTE: Description based on Greater Antillean and East Asian specimens.

Boehmeria ramiflora Jacq., Enum. Syst. Pl. 31. 1760.

FIGURE 21.

Type: Martinique, Jacq., Select. Stirp. Amer. Hist. pl. 157. 1763.

Arching shrubs or small trees to 8 m tall; young stems and leaves densely appressed-hirsute. Stipules lanceolate, 2.5-18 mm long, acuminate; nerves thickened, raised, appressed-hirsute. Leaves alternate, markedly different in size at adjacent nodes; petioles 0.2-9.2 mm long; blades ovate to lanceolate, 2.4-27.6 x 0.9-10.8 cm, often laterally asymmetric, scabrous, bullate, sparsely puberulent adaxially, pubescent abaxially, apex long-acuminate, often curved, base unequally cuneate, rounded or semicordate, margin serrate. Inflorescences glomerulate, sessile; bracts ovate to oblong, 0.5-1.6 mm long, chartaceous. Staminate flowers 3-merous, 0.6-1.3 mm long, infundibular at anthesis, puberulent above, white to pink, sessile or on pedicels to 0.5 mm long; anthers 3, 0.4-0.6 mm long; pistillate perianth lageniform, 0.8-1.7(-2) mm long, spreading stiff-pubescent; style 1.9-3.7 mm long, persistent, pubescent. Achenes ovate, 0.5-1 x 0.3-0.6 mm long, more or less compressed.

GENERAL DISTRIBUTION: Central America, South America, Jamaica, Hispaniola.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAME: Ortie des bois.

DOUBTFUL RECORDS

Boehmeria repens (Griseb.) Wedd. in DC., Prodr. 16(1): 201. 1869.

Basionym: *Pouzolzia repens* Griseb., Mem. Amer. Acad. Arts 2, 8: 174. 1861.

Type: Cuba, Monte Verde, in muris, *Wright 1459* (holotype, GOET, not found; isotypes, GH!, K!).

Fournet (1978) reported this species from Guadeloupe on the basis of *Questel 2307* (not seen).

Boehmeria cylindrica (Willd.) Wedd. var. **brachystachys** Wedd. in DC., Prodr. 16(1): 202. 1869.

Syntypes: Martinique and Porto Rico, *Plée s.n.*; Brazil, Piauh and Ceara, *Gardner 2004*; Rio Grande, *St. Hilaire 1727*. Gardner specimen at G-DC, IDC 800. 2648: I. 2, photo!; isosyntype, K!.

This species has not been reported again from the Lesser Antilles.



FIGURE 21. *Boehmeria ramiflora*, x 0.45.

GYROTAENIA Griseb.

Gyrotaenia Griseb., Mem. Amer. Acad. Arts. 2, 8: 174. 1861.

Trees or shrubs; monoecious or dioecious; without stinging hairs. Stipules small, caducous. Leaves alternate, entire or serrate. Inflorescences axillary. Flowers imperfect, glomerulate along inflorescence axes; staminate perianth 4-lobed, stamens 4; pistillate flowers naked, subtended by 2 bracts; stigma penicillate.

TYPE SPECIES: *Gyrotaenia myriocarpa* Griseb.

A genus of 6 species, endemic to the West Indies.

Gyrotaenia crassifolia (Wedd.) Urban, Repert. Spec. Nov. Regni Veg. **15**: 159. 1918.

FIGURE 22.

Basionym: *Urera crassifolia* Wedd., Arch. Mus. Hist. Nat. **9**: 161. 1856.

Type: Dominica, *Imray 206* (holotype, K!).

Trees or spreading shrubs to 5 cm in diameter; stems glabrous. Stipules fused, 0.9-1.7 cm long, enclosing the bud, appressed pubescent; cystoliths adaxial, linear. Leaves with petioles 0.7-10.8 cm long, hirsute, glabrescent; blades elliptic, ovate or suborbicular, 8.4-21.7 x 4.8-17.3 cm, apex abruptly acute, base rounded to rarely cuneate, margin serrate; abaxial surface puberulent especially on veins, adaxial surface with areoles with conspicuous linear cystoliths radiately arranged around a single translucent trichome, trichome often aborting, easily broken off and leaving a basal cavity on many dried specimens. Inflorescence axes pubescent, borne near apex of stem; staminate inflorescences 4.7-8.4 cm long, peduncles 0.2-1.8 cm long; pistillate inflorescences 3.2-6 cm long, peduncles



FIGURE 22. *Gyrotaenia crassifolia*, x 0.42.

0.7-1.8 cm long, rachis (base of glomerule) accrescent and fleshy, becoming translucent white. Staminate perianth parts obovate with ciliate margins, stamens inflexed in bud, pistillode prominent; pistil closely subtended by 2 ciliate bracts. Achenes brownish, lenticular, ca. 0.8 mm long; embedded in surface of swollen rachis.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Dominica!

NOTES: Description based on holotype, and on *Whiteford* 3968, 4139 (BM, and undistributed duplicates).

Gyrotaenia is distinguished from *Urera* by its lack of a pistillate perianth and its unarmed leaves. In transferring the epithet, Urban also cited *Imray* 271 from Dominica, and *Duss* 2861 from Guadeloupe. We have seen a duplicate of the Duss collection at NY; dissection of the flowers reveals a 4-lobed perianth, and in other respects the specimen agrees with *Urera caracasana*. Nicolson (unpubl. MS) verifies that *Imray* 271 is indeed *Gyrotaenia crassifolia*.

LAPORTEA Gaudich.

Laportea Gaudich. in Freyc., Voy. Uranie 498. 1830, nom. cons.

Syn.: *Fleurya* Gaudich. in Freyc., Voy. Uranie 497. 1830.

Herbaceous weeds with 2 types of trichomes: short stiff puberulence and long stinging hairs; monoecious; stems succulent, with linear cystoliths. Stipules separate or fused, hyaline, puberulent, 1-nerved. Leaves alternate, petiolate, dentate. Inflorescence a narrow panicle, axillary. Staminate flowers 4- to 5-merous; pistillate flowers 4-merous, tepals unequal, imbricate. Achenes ovate, compressed, enlarging irregularly to displace the short hooked style.

LECTOTYPE SPECIES: *Laportea canadensis* (L.) Wedd.

A genus of 23 species, tropical and subtropical. For more information, see W. L. Chew, Gard. Bull. Straits Settlement. **21**: 195-208. 1965.

Laportea aestuans (L.) Chew, Gard. Bull. Straits Settlement. **21**: 200. 1965. FIGURE 23.

Basionym: *Urtica aestuans* L., Sp. Pl. ed. 2, **2**: 1397. 1763, excluding synonym of *Rumphia*.

Type: Surinam, LINN 1111.14.

Syn.: *Fleurya aestuans* (L.) Gaudich. in Freyc., Voy. Uranie 497. 1830.

Annual herb to 1.2 m tall, branched, stems and petioles often red. Stipules lance-linear, 2.5-5.6 mm long. Leaves with petioles 0.6-15 cm long; blades ovate, 3.3-20.1 x 2.2-14 cm, adaxial surface bullate, with sparse stinging hairs, abaxial



FIGURE 23. *Laportea aestuans*: a, habit, x 0.45; b, pistillate flower, x 15; c, fruit, x 5; d, staminate flower, x 5.

glabrous to short-puberulent; apex acuminate, base cuneate, truncate or cordate, margin coarsely and sharply dentate; cystoliths linear irregular, abaxial. Inflorescences 2.1-20 cm long. Staminate flowers 0.8-1 mm long, green, at end of inflorescence branches; pedicels 0.4-0.5 mm long; anthers 0.5-0.6 mm long; pistillate flowers 0.5-1.3 mm; pedicels 0-2.3 mm long; ovary cream and green. Achenes ovate, 1.1-1.5 mm long, becoming tuberculate with a smooth rim.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Saba!, St. Kitts, Nevis, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Nettle, z'ortie, zèbe brûlante, ortie brûlante.

PHENAX Wedd.

Phenax Wedd., Ann. Sci. Nat. Bot. 4, 1: 191. 1854.

Weedy herbs or shrubs, without stinging hairs. Stipules lance-acuminate, free, chartaceous, 1-nerved, caducous. Leaves alternate, petiolate, blades 3-nerved; cystoliths punctate, adaxial. Inflorescences axillary, glomerulate, staminate and pistillate flowers intermixed; bracts numerous, ferrugineous, chartaceous with pubescent margins. Staminate flowers 4- to 5-merous; pistillate flowers naked; style filiform, caducous. Achenes ovate, only slightly compressed.

TYPE SPECIES: None designated.

About 25 species in tropical and subtropical regions of the Americas; 2 other species occur in Madagascar.

Phenax sonneratii (Poiret) Wedd. in DC., Prodr. 16(1): 235²⁷. 1869.

FIGURE 24.

Basionym: *Parietaria sonneratii* Poiret in Lam., Encycl. 5: 15. 1804 (as *sonnerati*).

Type: Inde, *Sonnerat s.n.* (P-LAM; IDC 6207. 605: III. 2, photo!).

Syn.: *Phenax vulgaris* Wedd., Ann. Sci. Nat. Bot. 4, 1: 192. 1854. Illegitimate renaming of *Gesnouinia boehmerioides* Miq. in C. Martius, Fl. Bras. 4(1): 194. 1853.

Herbs to 100 cm tall, sparsely pubescent throughout. Stipules 1-3.2 mm long. Leaves of adjacent nodes markedly different in size, those of axillary branches much smaller; petioles 0.2-4.7 mm long; blades ovate to oblong, elliptic, 1.4-6.6 x 0.6-4 cm, sparsely puberulent adaxially, more densely so abaxially, particularly on veins, apex acuminate, base cuneate, asymmetric, margin dentate over upper 2/3. Bracts obovate, 0.6-1.1 mm long. Staminate flowers 0.8-1.3 mm long; anthers 0.2-0.5 mm; style 0.5-1.4 mm long. Achenes 0.6-1.1 mm long, verruculose.

GENERAL DISTRIBUTION: Native to tropical Asia; weedy in Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.



FIGURE 24 (left). *Phenax sonneratii*, x 0.33. FIGURE 25 (right). *Pilea rivoirae*, x 0.33.

PILEA Lindley

Pilea Lindley, Coll. Bot. pl. 4. 1821.

Annual or perennial, erect or trailing herbs, sometimes shrubby near base; monoecious or dioecious; stems glabrous or pubescent, often succulent, with or without linear, longitudinally arranged cystoliths. Stipules membranaceous, connate, caducous or persistent, with cystoliths. Leaves opposite, equal or markedly unequal in size and petiole length, cystoliths linear; nerves 3 (5), basal or suprabasal. Inflorescences axillary, solitary or more often paired in leaf axils; staminate and pistillate flowers in same or different inflorescences. Staminate flowers 4-merous; white to green or pinkish; ovary rudimentary; pistillate flowers 3-merous, perianth segments generally unequal, each subtending a scalelike staminodium; stigma penicillate. Achene compressed-ovate, smooth or scabridulous.

TYPE SPECIES: *Pilea muscosa* Lindley (= *P. microphylla* (L.) Liebm.).

A pantropical genus of perhaps 400 species. The Lesser Antillean species exhibit striking regularities in the number and arrangement of staminate vs. pistillate flowers, and would probably be useful organisms for studies of the evolution and environmental control of sex expression (monoecy and dioecy), sex ratio (staminate to pistillate flowers), sex distribution (position of staminate and pistillate flowers in the inflorescence), and sex allocation (amount of energy devoted to producing staminate or pistillate gametes); such studies would also provide critical information for any future attempts to revise the genus. Nothing is known of the breeding system, compatibility systems or pollination biology of *Pilea*. It is presumed to be anemophilous because of its small inconspicuous flowers (K. L. Faegri and L. van der Pijl, *The principles of pollination ecology*, 1966); the explosive anther dehiscence of some species has also been interpreted as an adaptation for wind pollination (G. Mosebach, *Planta* **16**: 70-115. 1932). Comparative studies within groups of morphologically similar species are needed. For more information, see D. Boufford (*in* J. Massey, Vasc. Fl. Southeast. unpubl. MS), W. Burger (*Fieldiana* **40**: 218-283. 1977), and N. Miller (J. Arnold Arbor. **52**: 40-68. 1971).

KEY TO THE SPECIES

1. Leaves dentate, crenate or serrate.
 2. Leaves more than twice as long as wide, often plinerved *P. semidentata*
 2. Leaves < or twice as long as wide; nerves basal.
 3. Inflorescences generally extending beyond leaves.
 4. Stipules sessile-reniform, most < 3 mm long; staminate flowers generally 1 to 3 per cluster *P. inaequalis*
 4. Stipules oblong-ob lanceolate, most > 3 mm long; staminate flowers generally > 3 per cluster *P. caribaea*
 3. Inflorescences shorter than leaves.
 5. Leaves orbicular, suborbicular or ovate, puberulent; apex rounded.
 6. Leaves sessile *P. involucrata*
 6. Leaves petiolate *P. nummulariifolia*
 5. Leaves rhombic, glabrous; apex acute *P. hyalina*
 1. Leaves entire.
 7. Leaves < 13 mm long.
 8. Leaves generally watery, isophyllous, clustered at ends of branches, suborbicular to rhombic *P. herniarioides*
 8. Leaves opaque, anisophyllous, not clustered at ends of branches; large leaves elliptic to oblanceolate.
 9. Plants monoecious *P. microphylla*
 9. Plants dioecious *P. serpyllifolia*
 7. Leaves > 23 mm long.
 10. Leaves > 3 times as long as broad *P. forsythiana*
 10. Leaves < 3 times as long as broad.
 11. Inflorescences < leaves; bracts of staminate inflorescences minute *P. parietaria*
 11. Inflorescences > leaves; bracts of staminate inflorescences > 1 mm long *P. rivoirae*

Pilea caribaea Urban, Symb. Antill. 5: 320. 1907.

Syntypes: St. Vincent, *Smith 56*, *Eggers 6996*; Barbados, *Eggers 7315*, *Waby 12*, *14* (B, presumed destroyed; isosyntypes, *Smith 56* (NY!), *Waby 12*, *14* (K!).)

Syn.: *Pilea dussii* Urban, Symb. Antill. 5: 321. 1907. (Syntypes: Martinique, *Duss 440*; St. Lucia, *Duss s.n.* (B, presumed destroyed).)

Erect or scandent herbs to 6 dm tall, freely rooting at nodes; monoecious; stems puberulent with clear unicellular trichomes; cystoliths present. Stipules oblong-oblanccolate, 2.2-6 mm long, puberulent to glabrous, the margins long-strigose, hyaline, persistent; cystoliths longitudinal. Leaves of a pair subequal; petioles 3-69 mm long, puberulent; blades orbicular in smaller leaves, ovate to lanceolate in larger ones, 1.7-12.8 x 1.6-7.0 cm, apex acute, acuminate or rounded, base rounded to cordate, margin serrate, serrations acute or rounded; adaxial surface sparsely puberulent, trichomes stiffly erect on fresh specimens; abaxial surface puberulent along veins; cystoliths linear, irregular. Inflorescence a complex panicle of cymes, 46-118 mm long; staminate and pistillate flowers in same inflorescence; glomerules of up to 8 staminate flowers in lower part of inflorescence or extending out some branches; peduncles 23-95 mm long. Staminate flowers 0.8-2.6 mm long; pedicels 0-2 mm long; pistillate flowers 0.5-0.9 mm long; generally sessile but pedicels sometimes to 0.5 mm long. Achenes 0.5-1.1 mm long.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique, St. Lucia!, St. Vincent!, Grenada!, Barbados.

NOTES: This species is poorly differentiated from *Pilea inaequalis*, but field observation on St. Lucia confirmed the consistently larger stipules and larger size of *P. caribaea*. The greater density of staminate flowers may be a reliable taxonomic character or may simply be associated with larger size.

Pilea forsythiana Wedd. in DC., Prodr. 16(1): 111. 1869.

Type: Dominica, *Forsyth s.n.* (G-DC!; IDC 800. 2626: II. 2, photo!).

Syn. *Pilea mornicola* Urban, Symb. Antill. 5: 305. 1907. (Type: "in Guadeloupe ad saxa in Morne Petit-Maron in sylvis Bains-jaunes, alt. 700-800 m," *Duss 4063* (holotype, B, presumed destroyed; isotype, A!, NY!).)

Erect herbs, 3-30 cm tall; monoecious or dioecious; stems often clustered, glabrous, with or without cystoliths; internodes to 3 cm long, but often only 2-3 mm. Stipules broadly ovate to broadly lanceolate, 1.3-2.8 mm long, acute to rounded, persisting at leafless nodes; cystoliths sparse, longitudinal. Leaves of a pair subequal; petioles 4-34 mm long, glabrous to sparsely pubescent with clear unicellular trichomes, these most dense at base of blade; blades linear-lanceolate to narrowly lanceolate, 2.3-8.8 x 0.4-1.5 cm, apex long acuminate, base narrowly rounded to cordate, margin entire; leaf surfaces glabrous; cystoliths bacilliform adaxially, linear abaxially. Inflorescences shorter to longer than leaves; staminate and pistillate flowers in separate inflorescences; peduncles 7-40 mm long. Staminate flowers glomerulate along axis, glomerules bracteate; bracts ovate, 1-1.8 mm long, obtuse, cystoliths sparse, longitudinal; pedicels 0-1

mm long; perianth 1.2-1.4 mm long; pistillate flowers in branched cymes, bracts minute; pedicel 0-0.6 mm long; perianth 0.5-0.7 mm long. Achenes 0.5-0.6 mm long.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Vincent!.

COMMON NAME: Petit marron.

NOTES: Weddell questioningly attributed the type collection to Jamaica; Urban determined it to be from Dominica (Symb. Antill. 5: 300. 1907). This species is similar to *Pilea rivoirae* from which it is distinguished by its much narrower leaves. *Pilea forsythiana* Wedd. var. *robustior* Wedd. in DC. (Prodr. 16(1): 111. 1869, type, Wright 528, G-DC; IDC 800. 2626: II. 3, photo!) is probably not closely related to *P. forsythiana* s.s. The Cuban variety has early caducous stipules, very prominent abaxial cystoliths, much shorter peduncles, and generally clustered inflorescences.

Pilea herniarioides (Sw.) Lindley, Coll. Bot., sub. pl. 4. 1821.

Basionym: *Urtica herniarioides* Sw., Kongl. Svenska Vetenskapsakad. Handl. 8: 64, t. 2, f. 1. 1787.

Type: Hispaniola, Swartz s.n. (holotype, BM!; photo at A!).

Syn.: *Pilea microphylla* (L.) Liebm. var. *herniarioides* (Sw.) Wedd. in DC., Prodr. 16(1): 106. 1869.

Watery prostrate herbs, wholly glabrous to sparsely strigose; monoecious; stems to 7 cm long. Stipules broadly ovate, ca. 0.3 mm long, scarious. Leaves of a pair subequal, subsessile or with petioles 0.3-1.1 (5.7) mm long; blades suborbicular, broadly ovate, rhombic, ovate or elliptic, 0.8-9 x 0.8-8 mm, generally translucent, sparsely strigose to glabrous adaxially, glabrous abaxially, base truncate to cuneate, apex obtuse to rounded, margin entire; cystoliths prominent adaxially, transverse. Inflorescences axillary, sessile or nearly so, generally clustered with leaves near apex of stem; bracts minute. Staminate flowers few, caducous, borne in same axil as pistillate; staminate perianth turbinate, 0.4-0.5 mm long; pistillate perianth scalelike, 0.3-0.6 mm long. Seed 0.3-0.5 mm long.

GENERAL DISTRIBUTION: Florida, Central America, South America, West Indies.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!.

NOTES: See *Pilea microphylla* for more discussion of this species. The cystoliths on the leaves of the holotype are irregularly oriented, in contrast to the regular transverse orientation of the ones of most representatives of this species.

Pilea hyalina Fenzl, Nov. Gen. Sp. Pl. 256. 1849. (Reprinted from Denkschr. Kaiserl. Akad. Wiss., Math.-Naturwiss. Kl. 1.)

Syntypes: "Hab. in Brasilia prope Rio Janeiro, Schüch; in Peruvia subandina prope Cuchero ad fossas cultorum, Poeppig s.n., Dec. 1829" (w).

Erect herbs to 3 dm tall; monoecious; stems glabrous, mostly unbranched, more or less succulent, without obvious cystoliths. Stipules linear-lanceolate,

0.5-1 mm long, early caducous. Leaves of a pair with equal blades, unequal petioles; petioles 8-39 mm long, glabrous; lower blades orbicular to ovate, upper blades ovate to rhombic-elliptic, 1.1-4.9 x 1-3.4 cm, apex and base acute, margin coarsely dentate; adaxial surface with sparse unicellular trichomes, these sometimes forming dense tuft at base of blade and top of petiole, or glabrous; abaxial surface glabrous; cystoliths linear. Inflorescences much shorter than petioles; peduncles 0.5-5 mm long; staminate flowers scattered in predominantly pistillate inflorescences. Staminate flowers 0.4-0.5 mm long; pedicels 0.2-0.4 mm long; pistillate flowers 0.5-0.7 mm long, sessile. Achenes 0.5-0.7 mm long.

GENERAL DISTRIBUTION: Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Martinique!.

NOTE: Earliest records from the Lesser Antilles report this plant from coffee and cocoa plantations. We presume it to be an introduced weed.

Pilea inaequalis (A. L. Juss. ex Poiret) Wedd., Ann. Sci. Nat. Bot. sér. 3, **18**: 229. 1852.

Basionym: *Urtica inaequalis* A. L. Juss. ex Poiret in Lam., Encycl. Suppl. **4**: 222. 1816. Type: Puerto Rico, *Riedlé s.n.*, ex herb. Baudin 501, Herb. Juss. #16899 (P-JU; IDC 6206. 1222: I. 3, photo!).

Syn.: *Dubruelia inaequalis* (Poiret) Gaudich. in Freyc., Voy. Uranie 495. 1830.

Urtica repens Sw., Kongl. Svenska Vetenskapsakad. Handl. **8**: 61. 1787. (Type: Hispaniola, *Swartz s.n.* (holotype, s; isotype, BM!).)

Pilea repens (Sw.) Wedd., Ann. Sci. Nat. Bot. sér. 3, **18**: 220. 1852.

Urtica hederacea Savigny in Lam., Encycl. **4**: 642. 1798. (Type: "...à la grande terre de la Guadeloupe..." (P-LAM; IDC 6207. 604: III. 3, photo!).)

Pilea hederacea (Savigny) Wedd., Monogr. 264. 1856, p.p.

Pilea chamaedrys Liebm., Kongel. Danske Vidensk.-Selsk. Skr. 5, **2**: 302. 1851. (Type: "in insula Puerto Rico Antillarum," *Bertero s.n.* (hb. Wedd.).)

Pilea guadalupensis Wedd., Ann. Sci. Nat. Bot. sér. 3, **18**: 223. 1852. (Type: "in insula Guadeloupe Antillarum," *Labillardière* in Hb. Weddell (P, not found; ex descr.).)

Pilea obtusata Liebm., Kongel. Danske Vidensk.-Selsk. Skr. 5, **2**: 300. 1851. (Type: Montserrat, *Ryan s.n.*, hb. Vahl (holotype, c; isotype, BM, not found, photo at A!).)

Pilea montana Wedd., Ann. Sci. Nat. Bot. sér. 3, **18**: 228. 1852. (Type: "Nascitur in collibus insulae Martinicae prope oppidum St. Pierre dictum," *Plée s.n.* (P, photo at A!).)

Pilea pubescens Liebm. var. *montana* (Wedd.) Wedd., Monogr. 258. 1856.

Erect, scandent or repent herbs, to 4 dm tall; monoecious; stems puberulent with clear unicellular trichomes; cystoliths present. Stipules sessile-reniform, 0.6-2.6 (-3.3) mm long, recurved, puberulent to glabrous, hyaline, persistent; cystoliths sparse, longitudinal. Leaves of a pair equal to unequal, smaller as little as 1/2 length of larger; petioles puberulent, 3-48 mm long; blades orbicular in smaller leaves, ovate to lanceolate in larger ones, 1-9.8 x 0.6-7.1 cm, apex acute to rounded, base cuneate, rounded or subcordate, margin serrate, serrations acute or rounded; adaxial surface glabrous to sparsely puberulent; abaxial surface puberulent, more densely so along veins; cystoliths linear, irregular. Inflo-

rescence a complex panicle of cymes, staminate and pistillate flowers in same inflorescence; axis apparently terminating with 1 to 3 staminate flowers; 1 to 3 additional male flowers sometimes clustered at base of lower inflorescence branches; peduncles 6-101 mm long; bracts minute, < 0.5 mm long. Staminate flowers 0.9-2.0 mm long; pedicels 0.2 (-2.9) mm long; pistillate flowers 0.5-0.9 mm long; generally sessile, but pedicels sometimes to 0.5 mm long. Achenes 0.5-1.1 mm long.

GENERAL DISTRIBUTION: West Indies.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Ti zortie, petit ortie, z'ortie blanc, ortie de cacaoyer, zoti blan, ortie blanche.

NOTES: *Pilea inaequalis* can be consistently recognized by its long peduncles and the characteristic arrangement of staminate and pistillate flowers in the inflorescence. It includes much material previously determined as *P. pubescens* Liebm., and the two species may be synonymous. As described here, *Pilea inaequalis* is a polymorphic species widespread in the Caribbean. The principal distinctions among the taxa now considered synonymous are in the size of the leaves, the dentation of the leaf blade, and the shape of the leaf base. Sufficient collections are on hand and populations have been studied in the field to indicate a large range of variation within a population or even within a single plant.

Many Jamaican plants determined as *Pilea obtusata* have staminate and pistillate flowers in separate inflorescences and are probably distinct from *P. inaequalis*. The name *P. obtusata* has generally been applied to West Indian plants with a subcordate leaf base, but single specimens show a full range of shapes from rounded or cuneate to deeply subcordate and with teeth in the upper half or along the full length of the blade. Nothing is known of the cytology of this complex, and polyploidy may be involved.

Urban (*in* Symb. Antill. 5: 323. 1907) referred the Guadeloupe material of *Pilea hederacea* to *P. repens*, which in turn appears to be a smaller-leaved form of *P. inaequalis*.

***Pilea involucrata* (Sims) Urban, Symb. Antill. 1: 298. 1899.**

Basionym: *Urtica involucrata* Sims, Bot. Mag. 51: t. 2481. 1824, not Roxb., 1832 (nom. nud., 1814).

Type: Illustration of cultivated plant of MacCrae from St. Vincent.

Syn.: *Pilea pubescens* Liebm. var. *involucrata* (Sims) Wedd., Monogr. 258. 1856.

Trailing herb with erect stems, to 20 cm long; monoecious; stems hirsute; cystoliths dense. Stipules broadly obovate to sessile-reniform, 1.4-3.2 mm, hirsute, persistent; cystoliths sparse, longitudinal. Leaves of a pair subequal, clustered near stem apex; petioles 2-11 mm, hirsute, cystoliths dense; blades ovate to obovate, 1.1-5.5 x 1-3.8 cm, apex rounded, base rounded to cuneate, margin entire to crenate; both surfaces pubescent, trichomes more dense near margins; cystoliths linear. Inflorescences mostly shorter than leaves, predominantly pistillate, with staminate flowers scattered near base; peduncles 3.5-6 mm,

glabrous. Staminate flowers 1-1.5 mm long, pedicels 0.8-1.4 mm long; pistillate flowers 0.4-0.5 mm long; pedicels 0-0.2 mm long. Achenes 0.4-0.6 mm long.

GENERAL DISTRIBUTION: Central and South America, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada!.

NOTES: The topotype collection cited by Urban (1899), *H.H. & G. W. Smith 805* without exact locality on St. Vincent, has only an occasional hair on the upper leaf surface in contrast to the more pubescent plants identified as this from northern South America, or to *Pilea ovalis* Griseb., a probable synonym from Trinidad and Venezuela.

* ***Pilea microphylla* (L.) Liebm.**, Kongel. Danske Vidensk.-Selsk. Skr. 5, 2: 296. 1851.

Basionym: *Parietaria microphylla* L., Syst. Nat. ed. 10, 2: 1308. 1759.

Type: Jamaica, Sloane, Voy. Jamaica t. 93, f. 2. 1707.

✓ Syn.: *Pilea muscosa* Lindley, Coll. Bot. pl. 4. 1821. (Type: *ibid.*)

✓ *Urtica microphylla* (L.) Sw., Kongl. Svenska Vetenskapsakad. Handl. 8: 66. 1787.

✓ *Pilea trianthemoides* (Sw.) Lindley, Coll. Bot., sub t. 4. 1821.

Urtica trianthemoides Sw., Kongl. Svenska Vetenskapsakad. Handl. 8: 68. 1797.

(Type: Hispaniola, Swartz s.n. (holotype, s, photo A!; isotype, BM!, photo A!))

✓ *Dubruellia microphylla* (L.) Gaudich. in Freyc., Voy. Uranie 495. 1830.

Pilea microphylla (L.) Liebm. var. *trianthemoides* (Sw.) Griseb., Fl. Brit. W. Indian Is. 155. 1859.

✓ *Pilea trianthemoides* (Sw.) Lindley var. *microphylla* (L.) Wedd. in DC., Prodr. 16(1): 107. 1869.

Erect or sprawling herbs, to 4 dm tall, but often much less than 1 dm; monoecious; stems glabrous, freely branched, with cystoliths. Stipules minute, hyaline, caducous, glabrous. Leaves strongly anisophyllous; additional leaves often developing from axillary buds so that 4 to 6 leaves are often clustered at a node; large leaves oblanceolate 2-12 x 1-6 mm; petioles 0.7-4 mm long; small leaves elliptic to oblanceolate to suborbicular, 1-3 x 0.7-2.5 mm; petioles 0.1-1 mm long; blades glabrous; cystoliths linear, prominent, transverse adaxially, rarely longitudinal abaxially. Plants monoecious. Inflorescences congested, generally paired in leaf axils; peduncles 0.1-1.5 mm long in staminate inflorescences, 0-1.3 mm in pistillate inflorescences. Staminate flowers 0.3-1.1 mm long; pedicels 0.1-0.5 mm long; pistillate flowers 0.4-0.7 mm long, sessile. Achenes 0.5-0.7 mm long.

GENERAL DISTRIBUTION: Tropical America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, St. Eustatius!, Nevis!, Redonda!, Montserrat!, Guadeloupe, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAME: Ti-teigne.

NOTES: Common on rocky outcrops and old foundation walls. The specimens are fragile when dry and commonly break into pieces.

The name *Pilea microphylla* appears on almost any specimen with small leaves. In the West Indies we have found specimens of seven taxa filed under

the epithet *microphylla*. Three of these taxa, *P. herniarioides*, *P. microphylla* and *P. serpyllifolia* occur in the Lesser Antilles. *Pilea microphylla* (including *P. trianthemoides*) and *P. serpyllifolia* are frequently misidentified in herbaria, and may prove to be part of a single, highly variable species. They are weakly separated by leaf size and shape, but appear to be consistently separated by sex distribution: *P. microphylla* has staminate and pistillate inflorescences paired. In most specimens of *P. microphylla*, each leaf has two axillary inflorescences; there are thus four inflorescences at a node. These four may all be pistillate, or three may be pistillate and one staminate. In the latter case, the staminate inflorescence is formed in the axil of the smaller of the two leaves. If, as occasionally happens, the two leaves are nearly the same size, then a staminate inflorescence may form in the axil of each, giving two staminate and two pistillate inflorescences at a node. *P. serpyllifolia* is dioecious and also has staminate flowers > 6 mm long.

A third taxon, often called *Pilea microphylla* var. *succulenta* Griseb. may be simply a thicker-leaved form of *P. serpyllifolia*. It is dioecious, upright, fleshy, appearing woody when dry, with stems characteristically drying grayish. The leaves are thick, fleshy, not strongly anisophyllous, densely covered with an irregular (but predominantly transversely oriented) array of cystoliths; they become strongly involute on drying. This taxon is confined to the Greater Antilles. The typification of the name is unclear. Grisebach cites a specimen in the Swartz herbarium and gives the range of the variety as Jamaica. We have not seen the specimen. Britton erected the species *P. margarettae* (Fl. Porto Rico 5: 246, 1924) to which he questioningly referred *P. microphylla* var. *succulenta*. We have not seen the type of this species. (Transfer of the epithet "*succulenta*" to the species level is precluded by *P. succulenta* Hook. f. and *P. succulenta* Wedd.)

Pilea herniarioides (Sw.) Lindley has been included in this complex, but is readily distinguished by its hyaline stems and suborbicular hyaline isophyllous leaves that are sometimes sparsely strigose. Staminate and pistillate flowers occur together in mostly sessile inflorescences. In Swartz's protologue, he describes the staminate and pistillate flowers as occurring in separate inflorescences. From our examination of the holotype, it appears that his description is inaccurate. An isotype of *Pilea tenerrima* Miq. at G is clearly conspecific with *P. herniarioides*. However, the name *P. tenerrima* is commonly applied to an erect rather than prostrate plant to 1 dm tall with pedunculate inflorescences and much longer petioles (> 3 mm long); this latter species, if it proves to be distinct, may require a new name.

In Haiti and Cuba there is a shrubby taxon with leaves elliptic, acute, minute (< 2 cm), densely clustered, and produced from short shoots; these appear to be monoecious, although predominantly pistillate. Another form occurs in Puerto Rico, is dioecious, and has inflorescences longer than the subtending leaves. This may also be referable to *Pilea serpyllifolia* (q.v.). It is very similar to the type of *P. serpyllacea* (Kunth) Hook.

We find no justification for maintaining *Pilea microphylla* and *P. trianthemoides* as separate taxa. As commonly applied, the name *P. microphylla* is used for prostrate to shortly-upright plants with large leaves up to 8 mm long, small

leaves elliptic to oblanceolate and staminate flowers < 0.6 mm long; *P. trianthemoides* is applied to larger upright plants with large leaves up to 12 mm long, small leaves suborbicular and staminate flowers > 0.6 mm. We have found these forms to be ends of a continuum. If, however, future workers elect to maintain them as separate, then there is a potential problem with typification. Lindley's figure clearly shows inflorescences predominantly pistillate with scattered staminate flowers. Lindley also says Sloane (Voy. Jamaica t. 93, f. 2) seems to him to be referable to *P. trianthemoides*. The illustrated plant is clearly upright, with small leaves approaching orbicular in shape. No flowers are shown and the magnification is not given. Without seeing the specimen in hb. Sloane, it is impossible to determine the distribution of staminate and pistillate flowers or the size of the leaves, either of which would clarify the correct name to be applied to these plants. If the staminate flowers are > 0.6 mm and occur in wholly staminate inflorescences, then *P. microphylla* and *P. trianthemoides* are synonymous, and what we call *P. microphylla* here should be referred to *P. muscosa*. If, however, the staminate flowers are < 0.6 mm and occur singly in otherwise pistillate inflorescences, then the names continue as used commonly and as cited here.

Swartz describes this as wholly dioecious, but this is an error; the isotype of *P. trianthemoides* at BM has both staminate and pistillate flowers.

***Pilea nummulariifolia* (Sw.) Wedd., Ann. Sci. Nat. Bot. sér. 3, 18: 225. 1852.**

Basionym: *Urtica nummularifolia* Sw., Kongl. Svenska Vetenskapsakad. Handl. 8: 63. t. 1, f. 2, 1787.

Type: Jamaica, Swartz s.n. (holotype, s; isotype, BM!, photo at A!).

Trailing herbs covered throughout with tangled, clear, unicellular hairs; monoecious or dioecious; stems rooting at nodes. Stipules ovate, 1.8-3.2 mm long, obtuse, hyaline, often ciliate-margined, with sparse linear cystoliths. Leaves of a pair subequal; petioles 4-25 mm long; blades orbicular to ovate, 0.9-2.4 x 0.9-2.4 cm, apex rounded, base rounded to cordate, margin crenate to serrate; cystoliths linear, irregularly arranged. Staminate and pistillate flowers generally in separate inflorescences, the staminate dense, sessile, partially concealed by subtending leaves; axes tomentose; pistillate inflorescences dense, peduncles 2-10 mm long, glabrous. Staminate flowers 1.6-2.3 mm long; pedicels 1.3-1.4 mm long; pistillate flowers 0.4-0.5 mm long; pedicels 0-0.4 mm long. Achenes 0.4-0.6 mm long.

GENERAL DISTRIBUTION: West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, St. Lucia!, Barbados!.

COMMON NAMES: Ti-teigne rond.

NOTES: Much material that has been determined as *Pilea repens* is actually referable to *P. nummulariifolia*. The type of *P. repens* is assigned to *P. inaequalis*.

***Pilea parietaria* (L.) Blume, Mus. Bot. 2: 48. 1856.**

Basionym: *Urtica parietaria* L., Sp. Pl. 2: 985. 1753.

- * Type: Sloane, Cat. Pl. Jamaica 50; Voy. Jamaica 144, t. 93, f. 1 (specimens at BM, according to Fawcett & Rendle, Fl. Jamaica).
- Syn.: *Urtica ciliaris* L., Syst. Nat. ed. 10, 2: 1266. 1759. (Type: Plum., Pl. Amer. 120. f. 2. 1757.)

Pilea ciliaris (L.) Wedd., Ann. Sci. Nat. Bot. sér. 3, 18: 209. 1852.

Pilea wydléri Blume, Mus. Bot. 2: 49. 1856. (Type: "Herb. Wydlér, Portorico (1827) no. 199." (isotype, G!))

Pilea ciliaris (L.) Wedd. var. *wydléri* (Blume) Wedd. in DC., Prodr. 16(1): 115. 1869.

Pilea parietaria (L.) Blume var. *wydléri* (Blume) Urban, Symb. Antill. 4: 201. 1905.

Erect herb to 6 dm tall; monoecious; stem succulent, glabrous, with or without cystoliths. Stipules deltate to broadly ovate (rarely oblong) 0.9-4 mm long, acute to rounded, glabrous, hyaline, caducous; cystoliths linear. Leaves of a pair subequal; petioles 8-35(-48) mm long, glabrous to sparsely pubescent with clear unicellular trichomes, these most dense at base of blade; blades ovate, elliptic or lanceolate, 3.1-13 x 1.1-6 cm, apex acute to acuminate, base rounded to subcordate, margin entire, ciliate or glabrous; cystoliths linear; abaxial surface glabrous or with sparse trichomes on main veins near base; adaxial surface glabrous or with sparse trichomes. Inflorescences 1 or 2 in leaf axils, predominantly pistillate but with staminate flowers intermixed; peduncles 3-40 mm long. Staminate flowers 0.6-1.3 mm long; pedicels 0-0.5 mm long; pistillate flowers 0.4-0.7 mm long; pedicels 0-0.2 mm long. Achenes 0.5-0.7 mm long.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Ortie des bois, ortie montagne.

NOTES: This species is characterized by having inflorescences much shorter than their subtending leaves (generally less than or equal to the petioles), stipules that are generally deltate and acute, and staminate flowers scattered singly through otherwise pistillate inflorescences. Pistillate plants of the very similar *Pilea rivoirae* are often confused with this species, although staminate plants are quite distinct.

Pilea parietaria and *P. ciliaris* have been distinguished on the basis of leaf shape and presence of cilia on leaf margins; we have found these characters to vary widely within one plant and within one population.

Pilea rivoirae Wedd., Ann. Sci. Nat. Bot. sér. 3, **18**: 210. 1852.

FIGURE 25.

Type: Martinique, 1859, *Doma Rivoire s.n.* (P, photo at A!).

Syn.: *Pilea ciliaris* (L.) Wedd. var. *rivoirae* (Wedd.) Wedd. in DC., Prodr. **16**(1): 114. 1869.

Pilea duchassaingii Urban, Symb. Antill. **5**: 304. 1907. (Type: Soufrière, Guadeloupe, *Duchassaing s.n.* (holotype, B, presumed destroyed).)

Erect herb to 2 m tall; generally dioecious, less often monoecious; stem succulent, glabrous to sparsely puberulent, at least above, with or without cystoliths. Stipules deltate to broadly ovate or lanceolate, 1.5-5.0 mm, rounded, persistent or tardily caducous; cystoliths sparse, longitudinal. Leaves of a pair subequal; petioles 3-66 (-104) mm long, glabrous to sparsely pubescent with clear unicellular trichomes, these most dense at base of blade; blades ovate, elliptic or lanceolate, 3.3-14.3 x 1.4-6.5 cm, apex acute to acuminate, base subcordate, rounded to cuneate, margin entire, ciliate or glabrous; adaxial surface, glabrous or with sparse trichomes; abaxial surface with sparse trichomes at least on veins; cystoliths linear. Inflorescences single in leaf axils; peduncles 9-78 mm long. Staminate flowers glomerulate on panicle branches; bracts subtending glomerules ovate, 1.2-2.8 mm long, obtuse, cystoliths sparse, longitudinal; pedicel 0-1.4 mm long; perianth 1.2-2.3 mm long, wholly green or white below & green above; pistillate flowers in branched cymes, loosely glomerulate; bracts subtending glomerules 0.2-0.6 mm long; pedicel 0-0.5 mm long; perianth reddish, becoming green, 0.5-0.8 mm long. Achenes 0.3-0.7 mm long.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

NOTES: At high altitudes, especially in cinders, plants assume a dwarf form not over 2 dm tall with leaves < 2 cm long and early caducous stipules. Plants on Guadeloupe have large leaves and persistent 3-5-mm stipules. These have been called *Pilea duchassaingii* but because they intergrade fully with the rest of *P. rivoirae* we do not think they merit recognition at the specific rank.

Weddell originally attributed *Pilea rivoirae* to Martinique and Jamaica. Fawcett & Rendle (in J. Bot. **50**: 178. 1912) concluded that the Jamaican plants were distinct and described them as *P. weddellii*.

Pilea semidentata (A. L. Juss. ex Poiret) Wedd., Ann. Sci. Nat. Bot. sér. 3, **18**: 215. 1852.

Basionym: *Urtica semidentata* A. L. Juss. ex Poiret in Lam., Encycl. Suppl. **4**: 222. 1816.

Type: Puerto Rico, *M. Riedlé s.n.* (holotype, P-JU #16888; IDC 6206. 1221: II. 3, photo!).

Syn.: *Dubrueilia semidentata* (A. L. Juss. ex Poiret) Gaudich. in Freyc., Voy. Uranie **495**. 1830.

Urtica crenulata Sieber, Fl. Martinique **344** (P!, photo at A!).

Pilea elegans Wedd., Ann. Sci. Nat. Bot. sér. 3, **18**: 215. 1852, not Gay, 1849.

(Syntypes: Martinique, *Plée s.n.* (P, photo at A!); Martinique, 1839, *Steinheil 200* (P, photo at A!).

Pilea decora Wedd., Ann. Sci. Nat. Bot. sér. 4, **1**: 284. 1854, nom. nud. Cited in synonymy of *P. elegans* Wedd. in DC., Prodr. **16**(1): 141. 1869.

Pilea semidentata (A. L. Juss. ex Poir.) Wedd. var. *major* Wedd. in DC., Prodr.

16(1): 142. 1869. (Type: No collections cited, none in G-DC.)

Pilea sarcophylla Wedd. in DC., Prodr. 16(1): 109. 1869. (Type: Antigua, Wulfschlaegel s.n. (M).)

Erect herb to 8 dm tall; generally monoecious, sometimes dioecious; stem succulent, glabrous; cystoliths linear. Stipules oblong to lanceolate, 3.7-13 mm, rounded, caducous, without obvious cystoliths. Leaves of a pair subequal; lower leaves sessile or with petioles only a few mm long, blades ovate-elliptic to elliptic, < 2 cm long, these grading into mature upper leaves; upper petioles 3-39 mm long, glabrous to puberulent adaxially or throughout; upper blades variously ovate-lanceolate, oblong-lanceolate, oblong-obovate or narrowly elliptic, 4.2-15.2 x 1.1-5.4 cm, apex acute, base cuneate, margin serrate or doubly serrate at least above midpoint; lateral veins suprabasal; adaxial surface glabrous, abaxial puberulent at least along veins; cystoliths linear. Peduncles 8-110 mm long. Staminate flowers in highly branched clusters on panicle branches; bracts minute or wanting; pedicels 0.5-4 mm long; perianth 0.8-2 mm long; pistillate flowers in small glomerules on panicle branches; pedicels 0-0.4 mm long; perianth 0.4-0.8 mm long. Achenes 0.5-1 mm long.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.

COMMON NAMES: Ortie rouge, ortie de bois.

Pilea serpyllifolia (Poir.) Wedd. in DC., Prodr. 16(1): 107. 1869.

Basionym: *Parietaria serpyllifolia* Poir. in Lam., Encycl. 5: 16. 1804.

Type: Martinique, P-JU #16885; IDC 6206. 1221: I. 5. (filed under *P. serpyllacea* Wedd.).

Erect herb, to 4 (6) dm tall; dioecious; stem succulent, much branched, glabrous; cystoliths prominent to obscure. Stipules minute, hyaline, deltate, soon caducous. Leaves more or less anisophyllous; additional leaves often developing from axillary buds so 4 to 6 leaves often cluster at a node; large leaves oblanceolate, 5-13 x 2.2-8 mm; petioles 0.2-3 mm long; small leaves oblanceolate, obovate or suborbicular, 1.4-5 x 1.2-4.1 mm; petioles 0-1.1 mm long; blades glabrous; cystoliths linear, transversely to irregularly oriented. Inflorescences generally paired in leaf axils. Staminate flowers in loose cymes; peduncles 0.2-1.6 mm long; pedicels 0-0.8 mm long; perianth 0.5-1.2 mm long; pistillate flowers generally sessile, densely 2-ranked along 2 main branches of dichasium; peduncles 0.2-1.4 mm long; perianth 0.3-0.6 mm long. Achenes 0.4-0.6 mm long.

GENERAL DISTRIBUTION: Central America, West Indies, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Barbuda!, Saba!, Montserrat!, Guadeloupe!, La Désirade, St. Lucia!, Grenada!.

NOTES: This species has been generally synonymized with *Pilea microphylla*, but we maintain it as distinct because of its generally larger leaves, larger staminate flowers and dioecious habit. Considerable confusion exists between the names *P. serpyllifolia* and *P. serpyllacea* (Kunth) Hook. Weddell apparently

believed the two to be synonymous; he used identical descriptions and specimen citations for *P. serpyllacea* (Monogr. 177. 1856) and then for *P. serpyllifolia* (in DC., Prodr. 16(1): 107. 1869), placing each in the synonymy of the other. Killip (Contr. U. S. Natl. Herb. 26: 479. 1939), on the other hand, claims that the type of *P. serpyllifolia* has ciliate leaves, and that this makes it distinct from *P. serpyllacea*. We have specimens from Martinique that match the description of *P. serpyllifolia* but none have ciliate leaves; we have seen only a photograph of the type. We have also seen a photo of the type of *P. serpyllacea* (based on *Urtica serpyllacea* Kunth, Nov. Gen. Sp. 2: 37. 1817), from Colombia, *Bonpland s.n.*, P-HBK #2143, IDC 6209. 31: I. 1. Based on comparison of the photos, the two species could be synonymous, but a final decision will have to await examination of the specimens themselves.

DOUBTFUL RECORDS

Pilea ?depressa (Sw.) Blume, Mus. Bot. 2: 46. 1856.

Trailing herb, rooting at nodes; erect stems up to 2.5 cm tall; plant stiff-puberulent throughout. Stipules sub-orbicular, 0.6-1.3 mm long. Leaves of a pair equal in size; petioles 0.6-2.3 mm long; blades cuneiform to obovate, 2.9-4.5 x 2.3-4.2 mm, apex rounded to truncate, base cuneate, margin crenate above midpoint; cystoliths linear, irregular.

This plant was collected once on Montserrat, where it was under cultivation; it had never been known to flower. The species is otherwise known only from the Greater Antilles.

Pilea lucida (Sw.) Blume (Mus. Bot. 2: 48. 1856) has been reported from Martinique by Weddell, who cites *Sieber 51*. Weddell also cites *Sieber 51* under *P. ciliaris* var. *wydléri*. We have not seen the specimen. We therefore follow recent floras and consider *P. lucida* endemic to Jamaica.

Fawcett & Rendle (Fl. Jamaica 3(1): 64. 1912) report *Pilea lanceolata* Wedd. from Dominica and St. Vincent without citing specimens. This is presumably an error as this species is otherwise known only from the Greater Antilles. There are two specimens at BM, *Anderson s.n.* from St. Vincent and *Ramage s.n.* from Dominica, determined as *P. lanceolata*, which are actually *P. forsythiana*. These may have been what Fawcett & Rendle saw.

Weddell (in DC., Prodr. 16(1): 139. 1869) bases *Pilea dauciodora* var. *parvifolia* on a Wulfschlaegel specimen supposedly from Antigua. Urban (Symb. Antill. 5: 311. 1907) concluded that the location was an error, attributed the specimen to Jamaica and described it as *P. wulfschlaegelii* (type: *Wulfschlaegel 1016*). Adams (Fl. Jamaica 1972) questioningly places the variety in synonymy under *P. rotundata*.

ROUSSELIA Gaudich.

Rousselia Gaudich. in Freyc., Voy. Uranie 503. 1830.

Perennial herbs; monoecious; without stinging hairs. Stipules ovate-lanceolate to lance-acuminate, free, hyaline, 1-nerved. Leaves alternate, petiolate, entire,

sparsely pubescent; nerves 3, basal; cystoliths punctate, adaxial. Inflorescences glomerulate, axillary near ends of branches. Staminate flowers 4-merous; pistillate flowers paired or clustered, enclosed by 2 foliaceous bracts; perianth 2- to 4-toothed, contracted around ovary; ovary slightly compressed; stigma penicillate. Achenes smooth.

TYPE SPECIES: *Rousselia lappulacea* (Sw.) Gaudich. = *R. humilis* (Sw.) Urban.

***Rousselia humilis* (Sw.) Urban, Symb. Antill. 4: 205. 1905.**

FIGURE 26.

Basionym: *Urtica humilis* Sw., Kongl. Svenska Vetenskapsakad. Handl. 6. 34. 1785.

Type: Jamaica, Swartz s.n. (holotype, s, not seen).

Syn.: *Rousselia lappulacea* (Sw.) Gaudich. in Freyc., Voy. Uranie 503. 1830.

Urtica lappulacea Sw., Kongl. Svenska Vetenskapsakad. Handl. 8: 69, t. 2, f. 2. 1787. (Type: Jamaica, Swartz s.n. (holotype, s, hb. Merat, not seen).)

Trailing herbs; branches not over 4 dm long; soft puberulent throughout. Stipules 0.8-2.2 mm long, caducous. Leaves of adjacent nodes slightly different in size; petioles 1-17 mm long; blades rhombic to ovate, 5-28 x 4-19 mm, apex acute to rounded, base cuneate. Staminate flowers 0.5-1 mm long, pubescent, red; anthers 0.3-0.5 mm long; pedicels 0.4-0.7 mm long; pistillate flowers each subtended by 1 broadly ovate, cordate bract, 2-3.6 mm long, ciliate, pubescent. Achenes 1.3-2 mm long, shining.

GENERAL DISTRIBUTION: Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Saba!, Dominica.

NOTES: Description prepared from Greater Antillean material.

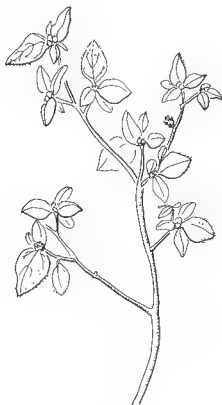


FIGURE 26. *Rousselia humilis*, x 0.42.

URERA Gaudich.

Urera Gaudich. in Freyc., Voy. Uranie 496. 1830.

Shrubs or small trees with stinging hairs; monoecious or dioecious. Stipules paired, free or slightly connate, 1-nerved. Leaves alternate, petiolate, 3- to 5-nerved at the base, pinnate-nerved above, dentate. Inflorescences much-branched, axillary, developing below leaves; branches subtended by deltate bracts. Staminate flowers 4- to 5-merous; pistillate perianth 4-lobed, accrescent, 2 lobes becoming much larger than others, becoming succulent; stigma penicillate. Achenes lenticular.

TYPE SPECIES: *Urera baccifera* (L.) Gaudich.

KEY TO THE SPECIES

1. Leaf teeth distant, fewer than 1 per cm; stems generally with stout prickles up to 5 mm long *U. baccifera*
1. Leaf teeth 1 or more per cm; stems without stout prickles (except sometimes in juvenile plants).
 2. Leaves broadly ovate to elliptic, base rounded to cordate *U. caracasana*
 2. Leaves narrowly ovate to elliptic, base cuneate to rounded *U. elata*

Urera baccifera (L.) Gaudich. in Freyc., Voy. Uranie 497. 1830. FIGURE 27.

Basionym: *Urtica baccifera* L., Sp. Pl. ed. 2, 2: 1398. 1763.

Type: Plumier, Pl. Amer. t. 260. 1756.

Stout herb or shrub to 7 m tall; stems covered with stiff, flattened, brownish prickles, to 5.2 mm long. Stipules lanceolate to lance-ovate, 5-10 mm long, acuminate, puberulent. Leaves covered throughout with 2 sizes of stinging hairs; petioles 1.6-16.3 cm long; blades ovate to elliptic, 6.9-33.5 x 5.5-26.9 cm, glabrous except for stinging hairs, apex rounded, acute or shortly acuminate, base cuneate, truncate or subcordate, margin coarsely dentate, teeth generally fewer than 1 per cm; cystoliths punctate, adaxial, clustered more densely around hairs. Inflorescences 5.1-8.6 cm long, often red-purple in color, wholly pistillate, wholly staminate or flowers of both sexes intermixed; axes with stinging hairs; bracts ca. 1 mm long. Staminate flowers 5-merous, 1.3-2.4 mm long; anthers 0.8-1.2 mm long; pedicels 0-1.7 mm long. Pistillate perianth 2-parted, accrescent, becoming 1.2-3.8 mm long, succulent white, becoming red; stigma penicillate; pedicels 0-2.2 mm long. Achenes 2.3-3.2 mm long, becoming tuberculate.

GENERAL DISTRIBUTION: Mexico, Central America, South America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada!.

Urera caracasana (Jacq.) Steudel, Nomencl. Bot. ed. 2, 2: 734. 1841.

Basionym: *Urtica caracasana* Jacq., Pl. Hort. Schoenbr. 3: 71, pl. 386. 1798.

Type: Caracas, Venezuela, Pl. Hort. Schoenbr. pl. 386. 1798.

Syn.: *Urera jacquinii* Wedd., Ann. Sci. Nat. Bot. sér. 3, 18: 200. 1852. Illegitimate renaming of *U. caracasana*.



FIGURE 27. *Urera baccifera*: a, a flowering branch, x 0.4; b, older stem and spines, x 0.45; c, staminate flower, x 7; d, pistillate flower, x 12; e, fruit, x 7; f, fruit, x 4.

Urera magna Britton, *Torreyia* 3: 90. 1903. (Type: St. Kitts, Wingfield Estate, Britton & Cowell 457 (holotype, NY).)

Shrubs or trees to 8 m tall, lower branches often elongate and scrambling; stems and other plant parts densely puberulent when young, glabrescent with age, armed with stinging hairs. Stipules lance-ovate, 8-12.5 mm long, laterally asymmetric, caducous. Leaves with petioles 3.1-35 cm long, with dense pubescence and sparse stinging hairs; blades broadly ovate to elliptic, 13.6-45 x 8.3-36 cm, with sparse stinging hairs on both surfaces, densely pubescent abaxially, apex acute, base rounded to cordate (cuneate on young leaves), margin crenate to dentate with about 1 tooth per cm, venation pinnate; cystoliths linear, adaxial, irregular. Inflorescences 2.4-4.3 cm long, staminate and pistillate flowers in separate inflorescences; axes densely puberulent; bracts 0.5-0.7 mm long. Staminate flowers 0.6-1.1 mm long, sessile; pistillate perianth 1.7-2.3 mm long, verrucose, white, becoming red; pedicels 0.2-0.5 mm long. Achenes 1-1.2 mm long, smooth.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia, St. Vincent!.

COMMON NAMES: Nettle tree, bois de fredoché, grande ortie.

NOTES: The combination is sometimes attributed to Grisebach (Fl. Brit. W. Indian Is. 154. 1860), and Fournet erroneously cites (Jacq.) Gaudich. This species is sometimes reported to be dioecious, but we have seen several collections with staminate and pistillate flowers in the same inflorescence.

Urera elata (Sw.) Griseb., Fl. Brit. W. Indian Is. 154. 1860.

Basionym: *Urtica elata* Sw., Prodr. 37. 1788.

Type: Jamaica, Swartz s.n. (holotype, BM!, photo at A!).

Trees to 6 m tall; stems appressed-pubescent with sparse stinging hairs. Stipules lanceolate to linear 3.6-8.3 mm long, acuminate, pubescent. Leaves with petioles 1.3-7 cm long, appressed-puberulent with stinging hairs; blades ovate to elliptic 8.9-19.7 x 3.7-9.4 cm, with scattered stinging hairs on both surfaces, densely puberulent abaxially, sparsely so adaxially, apex abruptly acuminate, base cuneate to rounded or subcordate, margin crenate to dentate with teeth more than 1 per cm; cystoliths punctate, adaxial. Inflorescences 3.5-4.6 cm long, axes appressed-puberulent; bracts 0.5-0.6 mm long. Staminate flowers ca. 2 mm long; pistillate perianth 1-2 mm long, verruculose. Achenes ca. 1 mm long, smooth.

GENERAL DISTRIBUTION: See below.

DISTRIBUTION IN LESSER ANTILLES: Possibly Guadeloupe and Dominica.

NOTES: This species is questionably distinct from *Urera caracasana*. Both species need more collecting. See also Burger (Fieldiana, Bot. 40: 276-280. 1977). Adams (Fl. Jamaica 237. 1972) claims that *U. elata* is endemic to Jamaica,

whereas Burger applies the name to a more inclusive group of plants.

PROTEACEAE

by George W. Staples

PROTEACEAE A. L. Juss., Gen. Pl. 78. 1789.

Trees or shrubs, usually evergreen, often xerophytes. Leaves alternate, rarely verticillate or opposite, exstipulate, entire or much divided. Inflorescences racemes, spikes, or heads, often showy. Flowers usually perfect, sometimes unisexual and dioecious, regular or zygomorphic; perianth uniseriate, valvate, 4-merous, tepals recurved at anthesis; stamens 4, opposite tepals, filaments fused to tepals, rarely free, anthers 2-chambered, longitudinally dehiscent, pollen porate or colpate; ovary superior, asymmetric, unilocular, with gynophore, hypogynous disc, scales or glands often present; ovules 1 to many, pendulous or parietal, always with micropyle downwards; style filiform, long, often bent inwards and swollen below or around stigma. Fruit a follicle, drupe or nut; seed lacking endosperm, often winged; embryo sometimes with > 2 cotyledons.

TYPE GENUS: *Protea* L., 1771, not 1753, *nom. cons.*

A family comprising ca. 60 genera and over 1000 species, primarily of drier regions in Africa, Australia, and South America. Venkata Rao (Bot. Monogr. no. 6, CSIR, New Delhi, 1971), in his familial revision, records about 260 species in the Australian genus *Grevillea*, with several cultivated as ornamentals. *Grevillea* is represented in the Lesser Antilles by two cultivated species.

The Silk Oak, *Grevillea robusta* A. Cunn. is a large tree native to the rainforest areas of Queensland, an atypical habit and habitat for the genus. The wood has a grain similar to that of oak, hence the name. Formerly this was an important timber source until deforestation made it unprofitable. Widely cultivated in temperate climates as an indoor foliage plant and in subtropical and warm temperate areas as an ornamental tree, it is also used to shade coffee plantations in India. It is cultivated on Montserrat and Guadeloupe.

Banks's *Grevillea*, *Grevillea banksii* R. Br., originated in the scrub and woodland regions overlying deep sandy soils in southeast Queensland. The shrubby habit is representative of *Grevillea*. It has been widely cultivated in Australia, Malaysia and Hawaii as an ornamental and for the cut flower trade. One collection from Montserrat has been seen. Arnold (in Archives of Dermatology and Syphilology 45: 1037-1051. 1942) reported that contact with the flowers has been found to produce a severe dermatitis, similar to that resulting from poison ivy or mango, a quality which has been unrecognized in the horticultural literature.

KEY TO THE SPECIES

Tree to 30 m tall; leaves bipinnatifid; inflorescence horizontal, from old wood; flowers orange-yellow (FIGURE 28) *G. robusta*



FIGURE 28. *Grevillea robusta*: a, leaf, x 0.6; b, fruit, x 0.6; c, inflorescences, x 0.6.

Shrub to 3 m tall; leaves pinnatifid; inflorescence erect, terminal, from shoot tip; flowers bright red *G. banksii*

LORANTHACEAE

by E. A. Kellogg

LORANTHACEAE A. L. Juss., Ann. Mus. Natl. Hist. Nat. **12**: 292. 1808, nom. cons. ('Loranthae').

Parasitic shrubs (elsewhere vines and trees); branches terete, compressed or quadrangular; glabrous or furfuraceous. Leaves opposite, sub-opposite or alternate, simple, penninerved, petiolate to subsessile, exstipulate. Inflorescences various; flowers in monads or triads, these with or without bracts and bracteoles, pedicellate or not; monads or triads arranged in umbels, corymbs, racemes or spikes. Flowers perfect or, if unisexual, then plants dioecious; sepals modified to form rim or calyculus on top of ovary; petals 6 (4 to 8), valvate, free or fused, erect to reflexed at anthesis; stamens 6, frequently 3 long and 3 short, longer ones sometimes staminodial; anthers 2- to 4-locular; ovary inferior; style elongate; stigma capitate or scarcely expanded, papillate. Fruit a viscous berry; seed 1.

TYPE GENUS: *Loranthus* Jacq., nom. cons.

A family of perhaps 36 genera and ca. 1300 species, all parasitic or semiparasitic; the group contains both tropical and temperate taxa.

KEY TO THE GENERA

1. Perianth > 1 cm long; flowers pedicellate *Psittacanthus*
1. Perianth much < 1 cm long; flowers sessile or on pedicels < 5 mm long.
 2. Flowers in triads, reflexed; bracts and bracteoles fused under each cluster *Phthirusa*
 2. Flowers single, not reflexed; bracts and bracteoles fused under each flower *Dendropemon*

DENDROPEMON Reichb.

Dendropemon (Blume) Reichb., Deut. Bot. Herb.-Buch 73. 1841.

Basionym: *Loranthus* sect. *Dendropemon* Blume, Fl. Javæ, Loranthæ 13. 1830.

Stiff or sprawling shrubs; stems terete, flattened or quadrangular. Leaves ovate, elliptic to obovate or oblanceolate, short petiolate, coriaceous to fleshy. Inflorescences axillary racemes. Flowers pedicellate or nearly sessile, perfect, each subtended by bract and 2 bracteoles, these \pm used and calyx-like, persisting in fruit; petals (5) 6, valvate; stamens 6, 3 long and 3 short; ovary inferior; style linear, sometimes articulate, stigma papillate, \pm capitate.

TYPE SPECIES: Not designated.

A West Indian genus of 15 species.

Dendropemon caribaeus Krug & Urban, Bot. Jahrb. Syst. **24**: 27. 1897.

FIGURE 29.

Type: Numerous syntypes cited, lectotypification not attempted here.

Syn.: *Dendropemon caribaeus* Krug & Urban var. *wabyanus* Krug & Urban, Bot. Jahrb.

Syst. **24**: 28. 1897. (Syntypes: *Waby* 104, *Garber* 57 (B, presumed destroyed; K!); lectotypification not attempted here.)

Struthanthus caribaeus (Krug & Urban) Stehlé, Bull. Soc. Bot. France **34**: 32. 1954.

Phthirusa caribaea (Krug & Urban) Engl. in Engl. & Prantl, Nat. Pflanzenfam., Nachtr. **2-4**: 135. 1897.

Loranthus emarginatus sensu Griseb., Fl. Brit. W. Indian Is. 312. 1864, p.p.

Irregularly branched shrubs; stems quadrangular, gray to pale brown, glabrous to furfuraceous. Leaves with petioles 1-5 mm long; blades ovate to obovate or suborbicular, 3.3-4.6 x 1.6-3.2 cm, apex obtuse to acute, often apiculate, base cuneate, membranous. Racemes axillary, ca. 1/2 as long as subtending leaf, 6- to 12- (19-) flowered; axes glabrous to furfuraceous. Pedicels 1-2 mm long; petals red to brown, lanceolate, 2-2.5 mm long, spreading at anthesis, caducous. Fruits blue-black to dark purple, oblong-globose, 6-8 x 3-5 mm.

GENERAL DISTRIBUTION: Puerto Rico, the Virgin Islands, and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Antigua!, Montserrat!, Marie Galante!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

COMMON NAMES: Roi de l'arbre, teigne rouge, pimprenelle.

NOTES: The distinctions among *Dendropemon*, *Phthirusa*, and *Struthanthus* are a matter of debate. We have followed Burger (Fieldiana, Bot. **13**: 31. 1983) and consider *Struthanthus* s.s. to be dioecious. The perfect-flowered plants can then be divided into those with the flowers in triads (*Phthirusa*) or those with flowers in monads (*Dendropemon*). The latter group is confined to the West Indies. None of the three "groups" has been revised, and until they are their relationships cannot be determined. It seems desirable, therefore, to keep them distinct until the generic limits are clarified.

Dendropemon itself has been poorly studied. Fortunately, *Dendropemon caribaeus* is distinctive within the genus because of its consistently quadrangular stems, but it is unusual in its wide variation in leaf shape and amount of scaliness of the stems. *D. caribaeus* var. *wabyanus* is supposed to include furfuraceous plants, but the character seems to vary continuously.

Fournet reports both *Dendropemon uniflorus* (Jacq.) Steudel and *D. purpureus* Krug & Urban from Guadeloupe. His citation of *D. purpureus* is based on a description of *Duss* 2970, a specimen that he apparently had not seen. *D. purpureus* is an entirely glabrous species; we have not seen any Lesser Antillean specimens that are not at least somewhat scurfy in the inflorescence. *Dendropemon uniflorus* is a poorly characterized species, but all specimens we have seen clearly have obovate leaves with obtuse to emarginate apices, a combination of characters that does not appear in the Lesser Antilles.



FIGURE 29 (left). *Dendropemon caribaeus*: habit, x 0.3. FIGURE 30 (center). *Phthirusa pyrifolia*: habit, x 0.3. FIGURE 31 (right). *Psittacanthus americanus*: a, flowering branch, x 0.3; b, fruiting cluster, x 0.2.

PHTHIRUSA C. Martius

Phthirusa C. Martius, *Flora* **13**: 110. 1830.

Large parasitic shrubs; branches terete to compressed, glabrous to furfuraceous. Leaves ovate to elliptic, petiolate, subopposite, penninerved, coriaceous. Inflorescences axillary or terminal, racemose or paniculate; flowers in triads or pentads, bracts and bracteoles \pm connate beneath clusters. Flowers 6-merous; stamens 6, 3 long and 3 shorter; connectives enlarged; ovary inferior; style 1; stigma papillate.

TYPE SPECIES: *Loranthus clandestina* C. Martius = *Phthirusa clandestina* (C. Martius) C. Martius.

A genus of unclear delimitation. In his 1975 revision of *Cladocolea*, Kuijt transferred *Phthirusa clandestina* to *Cladocolea*. To avoid nomenclatural confusion, he then proposed that the name *Phthirusa* Eichler be conserved over *Phthirusa* C. Martius, allowing the name *Phthirusa* to be applied in its traditional sense to the South American and Caribbean species (see Taxon **24**: 389. 1975). This proposal was rejected (Taxon **27**: 287. 1978). Thus Kuijt's *Cladocolea* must be called *Phthirusa* s.s. and a new name needs to be found for the other species of *Phthirusa*, including the Lesser Antillean "*Phthirusa*" *pyrifolia*.

Phthirusa pyrifolia (Kunth) Eichler in C. Martius, Fl. Bras. 5(2): 36. 1868. FIGURE 30.

Basionym: *Loranthus pyrifolius* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 3: 441. 1820.

Type: Popayan, prope Carthago (P-HBK!; IDC 6209. 88: III. 2, photo!).

Syn.: *Struthanthus pyrifolius* (Kunth) G. Don, Gen. Hist. 3: 413. 1834.

Branches flattened and furfuraceous when young, becoming terete and nearly glabrous with age. Leaves with petioles 4-14 mm long, adaxially sulcate; blades ovate to elliptic or lanceolate, 6-12.5 x 2.5-6 (-7) cm, apex acute to obtuse, base rounded. Inflorescences axillary, unbranched, 4-10.5 cm long; peduncles 7-25 mm long. Flowers nearly sessile, becoming reflexed; petals lance-linear, red, spreading at anthesis, ca. 1 mm long. Fruits oblong, 4-6 mm long.

GENERAL DISTRIBUTION: Costa Rica, Panama, Colombia, Venezuela, Guiana, southern Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

NOTES: *Loranthus biracemosus* Jacq., Enum. Syst. Pl. 35. 1760, has never been placed. Urban (Bot. Jahrb. Syst. 24: 71. 1897) suggested a similarity with *Phthirusa pyrifolia* but did not make the needed new combination. Jacquin credits the specimen to Houston, and Urban stated the plant was from Barbados. We have seen none of Jacquin's material.

PSITTACANTHUS C. Martius

Psittacanthus C. Martius, Flora 13: 106. 1830.

Woody parasites; stems terete to compressed. Leaves opposite to sub-opposite, simple, entire, penninerved. Inflorescence a raceme of pedunculate triads, axillary or terminal. Pedicels distally flared to form a broadened cup; corolla showy, elongate, petals valvate, becoming reflexed at anthesis; stamens 6, ca. = corolla, anthers dorsifixed; ovary inferior, surmounted by flaring rim, the calyculus; style elongate, slender; stigma scarcely expanded. Fruit a sub-globose berry, viscous; seed 1, exalbuminous.

TYPE SPECIES: Not designated.

About 50 species of tropical America.

KEY TO THE SPECIES

Corolla scarlet, arcuate in bud; midpoint of pedicel \leq 1 mm thick in flower; calyculus caducous in fruit *P. americanus*
Corolla yellow, straight in bud; midpoint of pedicel \geq 1 mm thick in flower; calyculus persistent *P. martinicensis*

Psittacanthus americanus (L.) C. Martius, Flora 13: 108. 1830. FIGURE 31.

Basionym: *Loranthus americanus* L., Sp. Pl. 1: 331. 1753.

Type: Not designated.

Syn.: *Loranthus plumieri* Cham. & Schldl., Linnaea 3: 211. 1828. (Type: LE, not seen.)

Psittacanthus plumieri (Cham. & Schldl.) Don, Gen. Hist. 3: 417. 1834.

Psittacanthus scalpratus Eichler in C. Martius, Fl. Bras. 5(2): 25. 1868. (Type: India occidentali, *Ryan s.n.* (B, presumed destroyed).)

Loranthus guadeloupensis Duchass. in Griseb., Syst. Veg. Karaißen 78. 1857, p.p. (Type: Guadeloupe, *Duchassaing s.n.* (GOET; duplicate specimen at P! = *P. martinicensis*).)

Leaves with petioles < 5 mm long, indistinct; blades ovate, elliptic, or oblong-falcate, 3.6-9.6 x 2-5.5 cm, apically rounded, basally cuneate, rounded or truncate. Inflorescences terminal or axillary, racemose to umbelliform. Pedicels 8-10 mm long in flower, elongating to about 12 mm in fruit, ≤ 1 mm thick in flower; cupules 3-4 mm broad in flower, 5-7 mm in fruit; corollas scarlet, 3.5-4 cm long, arcuate in bud, acuminate; anthers 3-4 mm long. Fruits blue-black, 1.1-1.5 cm long; calyculus caducous.

GENERAL DISTRIBUTION: Mexico, Central America and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

Psittacanthus martinicensis (Presl) Eichler in C. Martius, Fl. Bras. 5(2): 26. 1868.

Basionym: *Loranthus martinicensis* Presl in Roemer & Schultes, Syst. Veg. 7: (126), 1640. 1830.

Type: Martinique, *Sieber 95* (holotype, PR; isotypes, K!, P!).

Syn.: *Psittacanthus dominicensis* Domin, Acta Bot. Bohem. 9: 3. 1930. (Type: Dominica, *Eggers 92* (K!).)

Leaves with petioles short, indistinct; blades variable on a single plant, from broadly ovate, sub-rhombic or broadly elliptical to narrowly elliptic, lanceolate, or oblong, often asymmetrical, falcate or gibbous, 5.5-13 x 1.9-6.5 cm, length-width ratio varying from > 3:1 to nearly 1:1, apex rounded and almost truncate to emarginate to acute or acuminate; base cuneate, penninerved. Inflorescences terminal or axillary, ± umbelliform. Pedicels 8-13 mm long, enlarging to 17 mm in fruit, ≥ 1 mm thick at midpoint in flower; cupules 4-6 mm broad in flower, expanding to 8-13 mm in fruit; corollas yellow, 32-45 mm; buds straight, acute, ± clavate; anthers 4-6 mm long. Fruits blue to violet or black, 16-19 x 10-14 mm.

GENERAL DISTRIBUTION: Restricted to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua, Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

COMMON NAMES: Roi de l'arbre (ouadlab), man 'pon tree.

NOTES: *Psittacanthus dominicensis* appears to be merely an extreme form of *P. martinicensis* with unusually long narrow leaves. In addition to the type (which Urban, in Bot. Jahrb. Syst. 24: 13. 1898, referred to *P. martinicensis* with some question), Domin cited *Jones 3* and *Domin s.n.*, 1926 (the latter sterile). At Kew, Domin also marked *Jones 3* as a type. Domin must have been in error on the size of the fruit. *Hodge 651* (GH) shows the full range of variation from narrowly falcate to broadly ovate leaves; the fruit on this specimen is 2 cm long.

VISCACEAE

by E. A. Kellogg

VISCACEAE Miquel, Fl. Ind. Bot. 11, 1: 803. 1856.

Woody parasites, containing chlorophyll, attached to hosts by haustoria; monoecious or dioecious; stems articulated, terete, angled or flattened, ours glabrous or minutely papillate. Leaves opposite, simple, often somewhat succulent, entire, exstipulate, petiolate or sessile, expanded, or reduced to scales. Inflorescence an articulated spike with one or more fertile internodes. Flowers small, unisexual; sepals 3, erect or closed; petals 0; stamens 3, unilocular or bilocular, sessile; ovary inferior; style 1, linear; stigma punctate. Fruit a berry; seed 1, surrounded by viscid pulp.

TYPE GENUS: *Viscum* L.

A family of 11 genera and some 450 species, distributed throughout the world. All are parasitic. Inflorescence typology (Figure 33, Inset) follows Kuijt (Wentia 6: 1-145. 1961). Flowers may be single above each bract of a fertile internode, or in a triangular arrangement (triad), in 2 columns with a single apical flower between the columns (type 1a), or in 3 columns (type 1b). Type 2 is a single column above each bract; this type is restricted to *Dendrophthora*.

KEY TO THE GENERA

- Anthers 2-locular; flowers never in type 2 arrangement; our species always with expanded foliage leaves *Phoradendron*
Anthers 1-locular; flowers in type 2 arrangement or occasionally in triads (if triads then plant dioecious and spikes staminate); our species squamous, or if with expanded leaves, then these < 35 mm long *Dendrophthora*

DENDROPTHORA Eichler

Dendrophthora Eichler in C. Martius, Fl. Bras. 5(2): 95, 102. 1868.

Woody parasites with terete or flattened stems, erect or somewhat pendant; monoecious or dioecious; cataphylls on lateral branches only. Leaves opposite, either expanded (in which case < 6 cm long) or reduced to scales. Inflorescences with 2 to several fertile internodes, with or without cataphylls; each internode subtended by 2 opposite decussate bracts; flowers in 1 to 3 ranks above each bract, single, or in triads, or more complex arrangements (Figure 33), most commonly 1 rank of up to 7 flowers. Flowers sunken in pits in rachis with only 1 whorl of perianth parts (sepals), these erect in fruit; staminate flowers with 3 sessile unilocular anthers, shed soon after anthesis; pistillate flowers with 1 inferior ovary and short linear style. Fruits ovoid to globose.

TYPE SPECIES: *Dendrophthora opuntoides* (L.) Eichler, Fl. Bras. 5(2): 102. 1868.

A genus of 53 species, of tropical and subtropical America. For more information see J. Kuijt, in *Wentia* 6: 1-145. 1961.

KEY TO THE SPECIES

- Plants with scale leaves only, or, if leafy, then leaves > 3 times as long as broad; inflorescences to 12 cm long, with 4 to 13 fertile internodes *D. macrostachya*
Plants with expanded leaves, \leq twice as long as broad; inflorescences < 1 cm long, with 2 to 4 fertile internodes *D. buxifolia*

Dendrophthora buxifolia (Lam.) Eichler in C. Martius, Fl. Bras. 5(2): 105. 1868.

Basionym: *Viscum buxifolium* Lam., Encycl. 3: 56. 1789.

Neotype: In Cuba Orientali, Wright 220a (GH!; isotypes, B, G, K, MO, NY, PH).

Syn.: *Phoradendron buxifolium* (Lam.) Griseb., Mem. Amer. Acad. Arts 8: 191. 1861.

Phoradendron buxifolium (Lam.) Griseb. var. *rotundata* Griseb., Cat. Pl. Cub. 120. 1866. (Type: Wright 2649.)

Dendrophthora buxifolia (Lam.) Eichler var. *rotundata* (Griseb.) Urban, Bot. Jahrb. Syst. 24: 67. 1897.

Pale green to olivaceous parasites; stems terete, much branched; vegetative lateral branches with 1 pair of cataphylls ca. 2 mm above node. Leaves with short indistinct petioles; blades obovate to oblanceolate, to 30 x 15 mm; apex truncate to emarginate, sometimes apiculate; base cuneate. Inflorescences axillary, rarely > 6 mm long, generally with only 2 to 4 fertile internodes; if all flowers pistillate, then these inserted singly above bracts in large cup extending 1 mm up side of fruit; otherwise upper internode consisting of triad of staminate flowers with pistillate below, or inflorescences type 2a with mixed staminate and pistillate flowers. Fruits oblong; sepals erect; color not reported.

GENERAL DISTRIBUTION: Cuba, Hispaniola, and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!.

NOTES: Kuijt notes that this species may be easily confused with *Dendrophthora cubensis* and *Phoradendron trinervium*, but they appear to be separable by the following characters: *D. cubensis* — staminate spikes 2a (not 1a as in *D. buxifolia*); *P. trinervium* — no expanded cup at base of fruit, fruit sometimes with a ring of obscure warts, and anthers unilocular.

Fournet (1976) reports *Dendrophthora elliptica* Krug & Urban var. *platyphylla* Krug & Urban from Guadeloupe (according to Duss) and from Dominica (according to Krug & Urban). However, Kuijt claims that this species occurs only in South America. It is possible that the specimens cited by Fournet are referable to *D. buxifolia*. (Duss 3852 (NY!) is *D. buxifolia* collected on Guadeloupe.)

Dendrophthora macrostachya (Jacq.) Eichler in C. Martius, Fl. Bras. 5(2): 104. 1868. FIGURE 32.

Basionym: *Viscum macrostachyum* Jacq., Collectanea 2: t. 5, f. 3. 1789.

Type: Jacquin's plate.

Syn.: *Phoradendron macrostachyum* (Jacq.) Griseb., Fl. Brit. W. Indian Is. 314. 1860.
Dendrophthora martinicensis Kuijt, Wentia 6: 85. 1961. (Type: Martinique, Macouba, on Melastomaceae, Hahn 298 (holotype, k!; isotypes, G!, P!).)
Viscum verticillatum Sieber, Pl. Mart. 226, not L., 1753. (Type: k!).
Dendrophthora willtreleasei Stehlé, Bull. Soc. Bot. France 1953-1954: 32. 1954. (Type: Vallée du Lorrain, Martinique, Stehlé 3379 (P!).)

Slender yellow-green parasite; dioecious; stems terete, but appearing ribbed when dry; vegetative side branches with 1 pair of cataphylls proximal to first pair of foliage leaves. Leaves with short indistinct petioles; blades long-elliptic to oblanceolate, to 35 x 9 mm, caducous, apex acute to rounded, base tapering. Inflorescences axillary, to 12 cm long, with 4 to 13 internodes; staminate flowers in 2 vertical ranks, 1 above each bract, generally 3 to 6 (-7) flowers per rank, distal flower of each internode largest; pistillate plants with only 1 flower per rank (2 per internode). Fruits ca. 4 mm long; green with orange calyx lobes, becoming translucent white with green lobes; calyx lobes spreading.

GENERAL DISTRIBUTION: Martinique and St. Lucia.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!.

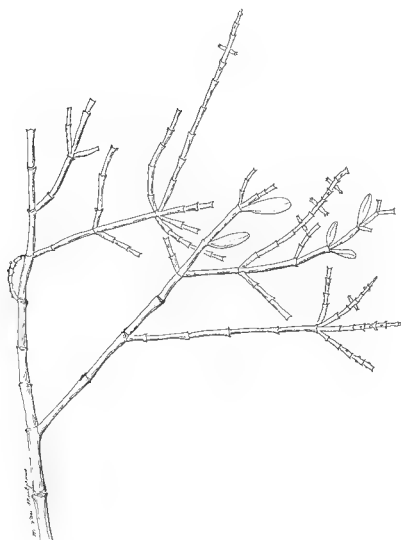


FIGURE 32. *Dendrophthora macrostachya*, x 0.4.

PHORADENDRON Nutt.

Phoradendron Nutt., J. Acad. Nat. Sci. Philadelphia 2, 1: 185. 1848.

Syn.: *Phoradendrum* of some authors.

Woody parasites with flattened rhombic, quadrangular or terete stems; monoecious or dioecious; our species all with expanded foliage leaves, cataphylls on all axes or only on lateral branches. Leaves opposite, basinnerved or penninnerved, frequently drying coriaceous, petiolate or sessile. Inflorescence a spike, with or without basal cataphylls; fertile internodes 2 to several, each subtended by a pair of opposite decussate bracts; flowers sunken in pits in rachis, in 1 to 3 ranks above each bract, either singly (and then pistillate) or in triads or more complex arrangements (see Figure 33). Perianth parts (sepals) in 1 whorl of 3, closed or erect in fruit; staminate flowers shed soon after anthesis; anthers 3, sessile, bilocular; pistillate flowers with inferior ovary and short style. Fruits ovoid to globose, white, yellow, or red, smooth, papillate, wrinkled or warty; seed 1, surrounded by a fibrous endocarp.

TYPE SPECIES: *Phoradendron californicum* Nutt.

A genus distributed from the northwestern United States to Argentina and Bolivia, with its greatest diversity in the tropics. W. Trelease (in The genus *Phoradendron*, Univ. of Illinois, 1916) described 240 species, but there are probably actually many fewer. For more information see E. A. Kellogg & R. A. Howard, J. Arnold Arbor. 67: 65-107. 1986.

KEY TO THE SPECIES

1. At least 1 pair of cataphylls distal to each pair of foliage leaves (on both main axes and lateral branches).
 2. Leaves with 3 to 5 (7) basal or nearly basal nerves; inflorescences type 1b or triads.
 3. Inflorescences triads, formed in axils of cataphylls *P. martinicense*
 3. Inflorescences type 1b, not in axils of cataphylls *P. chrysocladon*
 2. Leaves penninnerved; inflorescences type 1a *P. piperoides*
1. Cataphylls at base of lateral branches only.
 4. Stems 4-winged; inflorescences type 1a; fruits white *P. tetrapterum*
 4. Stems terete, compressed or 4-ridged, but not winged; inflorescences and fruits various.
 5. Flowers 2 per fertile internode (1 per bract) *P. trinervium*
 5. Flowers more than 2 per fertile internode.
 6. Inflorescence internodes appearing tetrastichous with 4 pistillate flowers (flowers actually in triads with upper flower staminate, lower 2 pistillate); fruits warty throughout *P. mucronatum*
 6. Inflorescence internodes not with 4 tetrastichous pistillate flowers; if flowers in triads, then pistillate flower uppermost or entire internode unisexual; fruits smooth or wrinkled, or warty only on upper part.
 7. Inflorescences type 1b, prominently hexastichous, clavate *P. hexastichum*
 7. Inflorescences type 1a, 1d, 1e, or triads.
 8. All flowers in triads *P. trinervium*

8. Inflorescences type 1a, 1d, or 1e, at most only few inflorescences on plant as triads.
9. Leaves > 3 times as long as wide, lance-linear to oblanceolate.
 10. Young fruits drying with a golden sheen, pyriform *P. hartii*
 10. Young fruits drying dark, only obscurely golden, globose to oblong *P. quadrangulare*
9. Leaves < 3 times as long as wide, shape variable.
 11. Immature fruit with a golden sheen when viewed under 10x lens; pyriform or lageniform *P. anceps*
 11. Immature fruit not golden; globose or cylindrical.
 12. Largest leaves 8 cm long or more.
 13. Leaf apex acuminate *P. undulatum*
 13. Leaf apex rounded (although sometimes apiculate) *P. barahonae*
 12. Largest leaves < 6.5 cm long *P. trinervium*

Phoradendron anceps (Sprengel) M. Gomez, Anal. Inst. Seg. Enseñ. Habana 2: 170. 1895, as to name only.

Basionym: *Viscum anceps* Sprengel, Syst. Veg. ed. 16 (17), 1: 487. (1824) 1825.

Lectotype: Santo Domingo, *Bertero* 439 p.p. (B, destroyed; isoelectotypes, G-DC, IDC 800. 664: I. 3 (left), photo!; PR, photo at ILL!).

Syn.: *Phoradendron martinicense* sensu Griseb., Fl. Brit. W. Indian Is. 314. 1860. (p.p., as to *Imray* 217 from Dominica, *fide* Nicolson).

Phoradendron chrysocarpum Krug & Urban, Bot. Jahrb. Syst. 24: 39. 1897. (Lectotype: Puerto Rico, *Bertero* 439 p.p. (G-DC, IDC 800. 664: I. 3 (right), photo!).)

Phoradendron chrysocarpum Krug & Urban var. *dussii* Urban, Symb. Antill. 5: 333. 1907. (Type: Guadeloupe, *Duss* 3904 p.p. (holotype, B, presumed destroyed, photo at ILL!; isotype, NY!; specimen at US is holotype of *P. herminieri* Trel.).)

Phoradendron dussii (Urban) Trel., Genus *Phoradendron* 100. 1916.

Phoradendron dussii (Urban) Trel. var. *typicum* Stehlé, Bull. Soc. Bot. France 92: 262. 1945.

Phoradendron dussii (Urban) Trel. var. *pauli* Stehlé, Bull. Soc. Bot. France 92: 262. 1945. (Type: Guadeloupe, *Bena*, *Quentin* & *Stehlé* 5834 (holotype, P, not found; isotype, NY!).)

Phoradendron chrysocarpum Krug & Urban var. *parvifolium* Trel. in Stehlé, Bull. Soc. Bot. France 92: 262. 1945. (Type: Martinique, Tunnel des Deux-Choux, *H.* & *M. Stehlé* 3368 (holotype, ILL!; isotype, NY!).)

Phoradendron chrysocarpum Krug & Urban var. *typicum* Trel. in Stehlé, Bull. Soc. Bot. France 1953-54: 27. 1954.

Stems flattened, ancipital, sometimes more or less rhombic; cataphylls 1 or 2 pairs, at base of lateral branches only, flaring ovate or truncate, scarcely fused, white-edged, ca. 2 mm above nodes. Leaves with petioles 5-10 mm long; blades ovate, elliptic or lanceolate, sometimes gibbous or falcate, 2.7-11.5 (13.5) x (1.1) 1.7-5.9 cm, apex obtuse, base cuneate; nerves all basal, or laterals slightly supra-basal. Inflorescences 2 to 5 per leaf axil, to 4 cm long; cataphylls 0 or 1 pair, these and lower bracts 3-lobed, upper bracts more nearly entire and navicular, prominently white-margined, tightly appressed in fresh specimens; fertile internodes 1 to 4, commonly type 1d or 1e, less frequently type 1a or triads (or on upper internodes 1 pistillate flower per bract); all inflorescence types present

on a single plant; flowers 3 to 12 per bract, unisexual or with staminate and pistillate flowers intermixed. Young fruits of dried specimens with a golden sheen when viewed under a 10x lens, characteristically pyriform; mature fruits creamy white to somewhat yellowish; sepals partially open but not stiffly upright.

GENERAL DISTRIBUTION: Venezuela, Cuba, Hispaniola, Jamaica, Puerto Rico, St. Thomas, St. Croix, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

NOTES: *Phoradendron anceps* has been divided into several species distinguished on the basis of leaf shape. However, leaf shape is so variable even within a single specimen that the distinction among the taxa breaks down. *Phoradendron dussii* var. *pauli* appears to be simply a small-leaved form of *P. anceps* from the Lesser Antilles.

Phoradendron barahonae Urban & Trel., Repert. Spec. Nov. Regni Veg. **13**: 444. 1914.

Lectotype: Hispaniola, *Fuertes* 275 p.p. (G, photo at ILL!; isolecotypes, A!, NY!, P!), (excluding *Fuertes* 275 (GH!, K!, BM!) which is *P. racemosum*).

Stems flattened when young but rapidly becoming terete; cataphylls 1 or 2 pairs, on lateral branches only, 1-2 mm and 5 mm above nodes, subannular, white-margined. Leaves with petioles 5-10 mm long; blades lanceolate, somewhat falcate, 4.4-15 x 1.4-5.5 cm, apically tapering but ultimately obtuse, base cuneate, 1 pair of lateral nerves basal, another pair suprabasal. Inflorescences 1 to 4 per leaf axil, thick, more or less clavate, to 4 cm long; cataphylls 0 or 1 pair, like bracts entire or 3-lobed, flaring, forming an infundibulum; fertile internodes 3 to 5, type 1a; flowers 7 to 15 per bract, deeply sunken into rachis, unisexual or staminate and pistillate flowers intermixed. Fruits globose, white; sepals closed.

GENERAL DISTRIBUTION: Venezuela, Cuba, Hispaniola, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!.

NOTES: The collection from St. Lucia (*Proctor 18089*) is unusual in that many of the fertile internodes have type 1b rather than type 1a inflorescences; however, the fruit shape and texture, leaf shape and leaf nervation all suggest placement with this species.

This species is similar to *Phoradendron anceps*, but is often more clearly penninerved, and tends to have more robust inflorescences with more flowers per internode. The fruits of *P. barahonae* are globose and somewhat flattened apically; the sepals often dry a different color from the rest of the fruit. In *P. anceps* the fruits are always pyriform until maturity when they become globose but not flattened; the sepals are generally the same color as the fruit. The fruit of *P. anceps* has a pronounced golden sheen (visible under a 10x lens) in young dried specimens, whereas that of *P. barahonae* is never golden. Leon and Alain (1951) record fruit color as red, but all specimens we have seen describe it as white.

Phoradendron chrysoclodon A. Gray, U.S. Expl. Exped., Phan. 1: 743. 1854.

FIGURE 33.

Type: U.S. Expl. Exped., without collector or number, Brazil, near Rio de Janeiro.
Syn.: *Phoradendron flavens* Griseb., Fl. Brit. W. Indian Is. 313. 1860.

Phoradendron flavens Griseb. var. *australe* Trel., Genus *Phoradendron* 155. 1916.
(Type: St. Vincent, Eggers 6746 (holotype not designated; isotype, P!))

Stems flaring and somewhat flattened above, sometimes ribbed below leaves; cataphylls 1 or 2 pairs between each pair of foliage leaves, 1-2 cm above nodes, (to 4 cm at base of lateral branches), large and flaring, deltate, not fused. Plants drying fluorescent yellow. Leaves with indistinct petioles; blades ovate to elliptic, often oblique, 5.2-16 x 2.2-8.5 cm, apex acute to acuminate, base cuneate, nerves basal, reticulate adaxially. Inflorescences 1 to 3 per leaf axil, to 6 cm long; cataphylls 2 or 3 pairs, large, flaring like bracts; fertile internodes 3 to 5 (-7), type 1b, flowers 11 to 18 per bract, staminate and pistillate intermixed. Fruits globose, white to yellowish, drying rough-wrinkled; sepals closed.

GENERAL DISTRIBUTION: Central and South America, Jamaica, Hispaniola, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!, Grenada!.



FIGURE 33. *Phoradendron chrysoclodon*, habit, x 0.4. Inset: inflorescence types of West Indian *Phoradendron*.

NOTES: *Viscum flavens*, the basionym of *Phoradendron flavens* Griseb., is illegitimate since Swartz cited the earlier name "*Viscum racemosum* Aubl." but did not transfer it. Grisebach's name, to be cited without the parenthetical reference of Swartz, is also illegitimate since he cited an earlier legitimate name "*Ph. chrysocladon* A. Gr." which must be considered the correct name for this distinctive species.

Phoradendron hartii Krug & Urban in Urban, Bot. Jahrb. Syst. **24**: 40. 1897.

Type: Trinidad. *Hart 6101*, (holotype, B, destroyed; isotype, P.)

Stem terete to compressed; cataphylls 1 pair on lateral branches only, ca. 1 mm above node, separate, flaring, broadly ovate. Leaves with petiole 5-10 mm long, distal end indistinct, blade lance-linear to oblong, somewhat falcate, 6-13.6 x 1.3-3.2 cm, apex rounded to more often acute with apical thickening 1 mm long, base tapering, nerves all basal or inner ones suprabasal. Inflorescences 1 to 4 per leaf axil, 2-3 cm long, axis ca. 1 mm thick when dry; cataphylls 1 pair, they and bracts 3-lobed to entire, white margined, navicular; fertile internodes 3 to 6, type 1a or 1e; flowers 3 to 7 per bract, mostly pistillate but some internodes with staminate and pistillate intermixed; apical flowers 2/1, lower ones 1/2. Young fruits pyriform, drying with a golden sheen visible under 10x lens; color of mature fruit not reported; sepals closed.

GENERAL DISTRIBUTION: Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Dominica.

Phoradendron hexastichum (DC.) Griseb., Fl. Brit. W. Indian Is. 313. 1860.

Basionym: *Viscum hexastichum* DC., Prodr. **4**: 282. 1830.

Type: Cuba, Havana, 1825, *De la Ossa s.n.* (holotype, G-DC, IDC 800. 664: I. 4, photo!).

Syn.: *Viscum verticillatum foemina* Sieber, Pl. Mart. 227 (BM!, K!, P!); not specimen at G-DC, which is type of *V. martinicense* DC.

Phoradendron hexastichum (DC.) Griseb. var. *angustifolium* Krug & Urban in Urban, Bot. Jahrb. Syst. **24**: 46. 1897. (Type: Grenada, prope Plaisance in monte St. Catharine, 600 m alt., *Eggers 6140* (holotype, B, destroyed, photo at ILL!; isotypes, GH!, P!).)

Phoradendron stehlei Trel. in Stehlé, Bull. Soc. Bot. France **85**: 575, nomen nudum. Ibid. **92**: 261. 1945. (Type: Martinique, Calvaire du Gros-Morne aux Deux-Choux, *Stehlé 2162* (holotype, ILL!). Isotypes at NY! and P! are *P. undulatum* (Pohl) Eichler; *Stehlé & Stehlé 2462* (P!) is labeled "co-typus" of *P. stehlei*, but is *P. anceps*.

Stems strongly flattened; internodes dilated upward; cataphylls thick, separate, 1 (2) pairs at base of lateral branches only. Leaves with petioles 5-10 mm long; blades lanceolate to ovate, 5-12.2 x 2.2-8.5 cm, thick, apex and base rounded, base decurrent on petioles, margins weakly revolute, nerves pinnate and prominent. Inflorescences 1 (2) per leaf axil, thick, clavate, to 5 cm long; cataphylls lacking (rarely 1 pair); bracts thick, large, flaring; fertile internodes to 5, type 1b, obviously hexastichous, wholly pistillate or staminate and pistillate flowers intermixed; if fertile internode bisexual, then staminate flowers in separate vertical rank and internode sometimes > 6-ranked; flowers 6 to 10 per bract. Fruits globose, white; sepals closed.

GENERAL DISTRIBUTION: Mexico, Venezuela, Brazil, Cuba, Hispaniola, Jamaica, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Phoradendron martinicense (DC.) Griseb., Fl. Brit. W. Indian Is. 314. 1860 (as to name only; Grisebach's description refers to *P. anceps*).

Basionym: *Viscum martinicense* DC., Prodr. 4: 280. 1830.

Type: Martinique, Sieber 227 p.p. (G-DC?, photo not in microfiche). Type not seen, but description is diagnostic; other specimens of Sieber 227 are *P. hexastichum*.

Stems terete; cataphylls 2 to 5 pairs between pairs of foliage leaves, first pair 1-5 mm distal to node, subsequent pairs 10-30 mm apart, small, generally distinct, on all axes. Leaves with petioles 4-7 mm long; blades lanceolate to ovate, 5-17.7 x 2-8.8 cm, apex acute to acuminate, ultimately obtuse, base tapering, nerves basal. Inflorescences 1 to 3 in axils of both leaves and cataphylls, to 6 cm long; cataphylls 1 to 3 pairs, like bracts flaring and navicular; fertile internodes 3 to 8 (-11); in Lesser Antilles, flowers mostly in triads with uppermost flower staminate, lower two pistillate, sometimes 2 more pistillate flowers formed in 1a pattern; most pistillate flowers forming fruits so spikes appearing tetrastichous. Fruits globose, rough, yellow to orange; sepals open.

GENERAL DISTRIBUTION: Trinidad, Brazil, Bolivia, Peru, Colombia, Venezuela, Guyana.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

NOTES: *Phoradendron martinicense* is distinguished from *P. crassifolium* (with which it is sometimes synonymized) on the basis of inflorescence morphology. At the northernmost limit of *P. martinicense*, in the Lesser Antilles, flowers are borne in triads or (rarely) 5 flowers per bract in a 1a pattern. The type of *P. crassifolium*, from southeastern Brazil, is figured by Eichler as having a type 1b inflorescence. Also the berries are drawn as smooth, whereas those of *P. martinicense* are rough-warty. Trelease claimed that plants of *P. martinicense* have shinier leaves than those of *P. crassifolium*, a character impossible to evaluate from herbarium specimens. He also said that *P. martinicense* has red fruits whereas those of *P. crassifolium* are yellow, but most specimens of *P. martinicense* for which we have data have yellow to orange fruits.

Phoradendron mucronatum (DC.) Krug & Urban in Urban, Bot. Jahrb. Syst. 24: 34. 1897.

Basionym: *Viscum mucronatum* DC., Prodr. 4: 282. 1830.

Type: Santo Domingo, Bertero s.n. (G-DC, IDC 800. 664: II. 1, photo!).

Syn.: *Phoradendron myrtilloides* of some authors, not Willd., 1806.

Stems flattened, but soon becoming terete, minutely glandular-papillate; internodes frequently < 2 cm long; cataphylls 1 pair at base of lateral branches only, separate or if fused then deeply cleft. Leaves with indistinct petioles; blades oblanceolate to obovate, 1.2-4.5 x 0.9-2.2 cm, apex obtuse to truncate, sometimes apiculate, base cuneate, median nerve strong, lateral basal nerves

less prominent. Inflorescences generally solitary in leaf axils (rarely paired), much shorter than subtended internodes, < 1.5 cm long; prophylls prominent; cataphylls absent; bracts broadly ovate, fused; fertile internodes 2 to 4; flowers in triads, upper 1 staminate and lower 2 pistillate, most of latter producing fruit, so fruiting inflorescences appear tetrastrichous. Fruits globose, white to orange; pericarp prominently warty; sepals erect.

GENERAL DISTRIBUTION: Panama, Venezuela, Brazil, Hispaniola, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Dominica!, Martinique!.

Phoradendron piperoides (Kunth) Trel., Genus *Phoradendron* 145. 1916.

Basionym: *Loranthus piperoides* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 3: 443. 1818.

Type: Colombia, Popayan, 1871, *Bonpland s.n.* (P-HBK!, IDC 6209. 88: III. 6, photo!).

Syn.: *Viscum latifolium* Sw., Fl. Ind. Occid. 1: 268. 1797, not Lam. 1789. (Type: Jamaica, Swartz s.n. (holotype, s, not seen).)

Viscum piperoides (Kunth) DC., Prodr. 4: 281. 1830.

Phoradendron latifolium (Sw.) Griseb., Fl. Brit. W. Indian Is. 314. 1860.

Stems terete; cataphylls 1 pair on percurrent axes, 3-6 mm above nodes; generally 2 pairs on lateral branches, 1 pair just above node, the other 1-2 cm above first, separate, grayish, triangular. Leaves with petioles < 5 mm long; blades elliptic to lanceolate, appearing distichous because of interspersed cataphylls, 3-10.5 x 1.2-5.6 cm, apex acuminate, base cuneate, nerves pinnate and obscure. Inflorescences 1 to 5 per leaf axil, to 5 (-7) cm long, standing erect on fresh specimens; cataphylls usually 1 or 2 pairs, crateriform like bracts; fertile internodes to 7, type 1a or sometimes triads; flowers 3 to 5 per bract, staminate and pistillate mixed in same internode. Fruits ovoid, yellow to orange, drying wrinkled; sepals stiffly erect.

GENERAL DISTRIBUTION: Mexico to Argentina, Hispaniola, Cuba, Jamaica, Puerto Rico, Trinidad, Tobago.

DISTRIBUTION IN LESSER ANTILLES: St. Bart's, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAME: a ho bois.

NOTES: This species is well named; the upright stance of the inflorescences and the apparently distichous phyllotaxy make it look from a distance like a species of *Piper*.

Phoradendron quadrangulare (Kunth) Griseb., Fl. Brit. W. Indian Is. 711. 1864 (as to name only — Grisebach cited a Crueger specimen from Trinidad, which is *P. trinervium*).

Basionym: *Loranthus quadrangularis* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 3: 444. 1818.

Type: "regni Novo-Granatensis, prope Pandi et Fusagasuga, alt. 940 h." *Bonpland s.n.* (holotype, P-HBK!, IDC 6209. 89: I. 2, photo!).

Syn.: *Viscum quadrangulare* (Kunth) DC., Prodr. 4: 283. 1830.

Phoradendron rubrum sensu Griseb., 1860, and other authors, not L., 1753.

Viscum trigonum D. Dietr., Syn. Pl. 1: 546. 1839, p.p. (Type: Puerto Rico and Guadeloupe, *Bertero s.n.* (JE, not seen).)

Stems flattened to more or less rhombic when young; cataphylls 1 pair at base of lateral branches only, small, annular, scarcely spreading. Leaves with indistinct petioles; blades linear, oblong to more or less oblanceolate, 3-9 (13) x 0.4-1.8 (2.5) cm, ca. 5 times longer than wide, the apex acute to obtuse, sometimes apiculate, the base tapering, the nerves basal, obscure. Inflorescences 1 to 3 per leaf axil, 2-2.5 (-5) cm long; cataphylls lacking (occasionally 1 pair on some branches); bracts small, fused, collarlike; fertile internodes to 5, type 1a; flowers 7 to 9 (-12) per bract, not deeply sunken in rachis, staminate and pistillate intermixed or pistillate only. Young fruits oblong with golden sheen; mature fruits globose, bright yellow; sepals closed.

GENERAL DISTRIBUTION: Central America, West Indies, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Guadeloupe, St. Vincent.

NOTES: Although several authors have reported this species from the Lesser Antilles, we have seen no specimens from there.

Phoradendron tetrapterum Krug & Urban *in* Urban, Bot. Jahrb. Syst. 24: 35. 1897.

Lectotype: Jamaica, between Hope and Grove, 267 m, *Harris 6393* (B, destroyed; isolectotype, NY!).

Stems obviously 4-angled and winged; cataphylls 1 pair on lateral branches only, 1-2 mm above nodes, thick and flaring, annular bifid. Leaves with petioles 4-10 mm long, clasping stem; blades lanceolate to elliptic to broadly oblanceolate, 2.6-10.3 x 1.1-2.1 (-3) cm, apex acute to rounded, apiculate, base tapering, nerves basal to sub-basal. Inflorescences 1 to 3 per leaf axil, to 7.5 cm long; cataphylls lacking (occasionally 1 pair), like bracts fused and navicular; fertile internodes to 6, type 1a; to 15 flowers per bract. Fruits globose, white; sepals closed but not meeting.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Jamaica, Puerto Rico, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Martinique, St. Lucia!, St. Vincent!.

COMMON NAME: a ho bois.

NOTES: Reported to grow exclusively on other mistletoes.

Phoradendron trinervium (Lam.) Griseb., Fl. Brit. W. Indian Is. 314. 1860.

Basionym: *Viscum trinervium* Lam., Encycl. 3: 57. 1789.

Lectotype: Martinique, 1787, *Isert s.n.* (P-LAM!, IDC 6207. 578: III. 4, 7, photos!).

Syn.: *Viscum myrtilloides* Willd., Sp. Pl. 2: 739. 1806. (Type: Martinique, hb. WILLD. no. 18296 (IDC 7440. 1330: II. 9, photo!).)

Loranthus domingensis Ham., Prodr. Pl. Ind. Occid. 33. 1825. (Type: Hispaniola, hb. Desvaux; not found at P; Urban (Symb. Antill. 8: 187. 1920) cited type as "Hb. Desv. (nunc Paris). — Jamaica.")

Viscum oblongifolium DC., Prodr. 4: 283. 1830. (Type: Guadeloupe, 20 June 1824, *Perrottet s.n.* (holotype, G-DC, IDC 800. 664: II. 3, 4, photos!).)

Phoradendron myrtilloides (Willd.) Griseb., Mem. Amer. Acad. Arts 8: 191. 1861.

Phoradendron rubrum var. *brevispica* Eichler *in* C. Martius, Fl. Bras. 5(2): 121.

1868 (excluding synonym *Viscum mucronatum* DC. and location Santo Domingo). (Syntypes: Martinique, Antigua, Porto Rico and S. Domingo; *Bertero s.n.*, *Wulfschlägel s.n.*, *Isert s.n.* (Hb. WILLD. 18296).) IDC 7440. 1330: II. 9, photo! is type of *P. trinervium* and *P. myrtilloides*.

Phoradendron rubrum var. *latifolia* Eichler in C. Martius, Fl. Bras. 5(2):121. 1868, fide Urban, 1897. (Type: in Antigua insula, *Wulfschlägel s.n.* (holotype, B, destroyed).)

Phthirusa domingensis (Ham.) Eichler in C. Martius, Fl. Bras. 5(2): 134i. 1868.

Phoradendron oblongifolium (DC.) Eichler in C. Martius, Fl. Bras. 5(2): 134m. 1868.

Dendrophthora myrtilloides Rolfe, Bull. Misc. Inform. 81: 274. 1893.

Dendropemon domingensis (Ham.) Tieghem, Bull. Soc. Bot. France 42: 1170. 1895.

Phoradendron trinervium (Lam.) Griseb. var. *domingense* (Ham.) Krug & Urban in Urban, Bot. Jahrb. Syst. 24: 38. 1897.

Phoradendron domingense (Ham.) Trel., Genus *Phoradendron* 102. 1916.

Phoradendron verticillatum of some authors, not L., 1753.

Viscum rubrum of many authors, not L., 1753.

Phoradendron quadrangulare sensu Griseb., 1864.

Stems quadrangular, becoming terete; internodes often < 3 cm long; cataphylls generally 1 pair, on lateral branches only, 1-2 mm above nodes, partially fused, white-edged. Leaves with petioles indistinct; blades elliptic, obovate or oblanceolate, widest at or above middle, 1.5-6 x 0.8-2.7 (-3.2) cm, apex truncate, obtuse or rounded above, occasionally minutely apiculate, base tapering, nerves basal and obscure. Inflorescences 1 (2) per leaf axil, slender, to 5 cm long, generally shorter than subtended internode; prophylls triangular, caducous; cataphylls 0 (1) pair, like bracts 3-lobed or nearly entire, partially fused, often notched at joint and white-margined, lower pair often 3-lobed; fertile internodes 2 to 4, in some specimens flowers only in upper half of internode; mostly in triads or varying within same plant to type 1a, or 1 pistillate flower per bract, or (rarely) type 1d; flowers 3 to 5 (7) per bract; internodes wholly pistillate, wholly staminate, or staminate and pistillate flowers intermixed. Fruits globose, yellow to orange or red-orange; smooth, or with ring of obscure papillae or warts near base of sepals around top of fruit; sepals triangular, erect.

GENERAL DISTRIBUTION: Costa Rica, Panama, Venezuela, Jamaica, Cayman Islands, Hispaniola, Puerto Rico, Bahamas, Trinidad, Tobago, Curaçao, Margarita.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts, Antigua!, Saba, St. Eustatius!, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Barbados.

NOTES: Although some authors have referred these plants to *Viscum verticillatum* L., Fawcett and Rendle (1914) claimed that Linnaeus's descriptions of *V. verticillatum* are based on diseased and monstrous specimens of *Cissus* sp. (LINN 1166.10). Nicolson and Jarvis (in Taxon 33: 726, 727. 1984) have confirmed this fact and have formally transferred the epithet to *Cissus*.

This species is very similar to *Phoradendron rubrum*, a species of the Bahamas and the Greater Antilles. Sterile specimens of *P. trinervium* also often cannot be reliably distinguished from small-leaved specimens of *P. anceps*.

Phoradendron trinervium rarely has the type 1d or 1e inflorescence common in *P. anceps*, and the stem is rhombic and soon terete, whereas that of *P. anceps* is more compressed. In more mature plants the distinction becomes clear, as the fruits of *P. anceps* soon develop their characteristic golden sheen and pyriform shape; the sepals remain closed or only slightly open, but not stiffly erect as in *P. trinervium*. The mature fruit of *P. anceps* is white to cream-colored, whereas that of *P. trinervium* is yellow, orange, or red-orange.

Phoradendron undulatum (Pohl) Eichler in C. Martius, Fl. Bras. 5(2): 122. t. 39. 1868.

Basionym: *Viscum undulatum* Pohl in DC., Prodr. 4: 282. 1830.

Type: Brazil, 1828, Pohl 868 (holotype, G-DC, IDC 800. 664: I. 5, photo!).

Syn.: *Phoradendron herminieri* Trel., Genus *Phoradendron* 131. 1916. (Type: Guadeloupe, Duss 3904 p.p. (holotype, US, photo at ILL!); specimen at NY is designated *P. chrysocarpum* var. *dussii*, but is *P. anceps*.)

Phoradendron chrysocarpum Krug & Urban var. *stehlei* Trel. in Stehlé, Bull. Soc. Bot. France 92: 262. 1945. (Type: Guadeloupe, H. & M. Stehlé 2459 (holotype, ILL!; isotypes, GH!, NY!, P!).)

Stems flattened; cataphylls generally 2 pairs on lateral branches (these sometimes confused with main axes because 1 of pair often aborts), first pair 2-3 mm above node, second ca. 25 mm above first, shallowly 3-lobed, spreading. Leaves with petioles 4-5 mm long; blades lanceolate, 6-12.5 x 2.2-4.3 cm, thin, apex acuminate, base cuneate, nerves pinnate. Inflorescences 1 to 3 per leaf axil, to 5 cm long; cataphylls 1 to 5 pairs, boat-shaped to crateriform like bracts; fertile internodes to 9, type 1a; flowers 5 to 7 per bract, staminate and pistillate intermixed. Fruits globose, white, becoming rough-wrinkled; sepals somewhat parted.

GENERAL DISTRIBUTION: Brazil, Bolivia, Venezuela, Peru, Costa Rica, Panama.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!.

NOTES: We have found no way to distinguish the Caribbean from the South American members of this taxon and therefore place Trelease's name, *Phoradendron herminieri*, in synonymy. Trelease erected the species on the basis of its glossy leaves on dried specimens, a character we have not found distinctive.

OLACACEAE

OLACACEAE Mirbel ex DC., Prodr. 1: 531. 1824.

Armed or unarmed trees or shrubs, autotrophic or hemiparasitic. Stipules wanting. Leaves alternate or subopposite, simple, entire, pinnately veined, petiolate. Inflorescences axillary, panicles, racemes or cymes, often fasciculate. Flowers bisexual or rarely polygamodioecious, actinomorphic, heterostylis; calyx small, crateriform to campanulate, free or basally adnate to ovary, sometimes accrescent in fruit; petals 3 to 6, free or connate, valvate or imbricate; disc sometimes present, simple or cupuliform; stamens same number or twice as many as petals; pistil 1, ovary superior to half inferior, 2- to 5-locular, ovules 1 per locule, style long or short. Fruit a drupe, sometimes with colored accrescent calyx.

TYPE GENUS: *Olex* L.

For more information see H. Sleumer, in *Flora Neotropica Monograph* 38: 1-158. 1984.

KEY TO THE GENERA

1. Ovary inferior or half inferior; midrib curved and leaves often appearing folded, turning black on drying; epicalyx of 2 or 3 concrescent bracteoles; corolla tubular; drupe orange or red *Schoepfia*
1. Ovary superior; midrib usually straight and leaves flat; epicalyx absent; petals free.
 2. Plants with thorns; petals densely brown pubescent inside; fruiting calyx minute; drupe yellow *Ximenia*
 2. Plants unarmed; petals glabrous; fruiting calyx expanded to brightly colored ring; drupe black *Heisteria*

HEISTERIA Jacq.

Heisteria Jacq., Enum. Syst. Pl. 4, 20. 1760, nom. cons.

Unarmed shrubs or trees. Leaves alternate, oval, elliptic or oblanceolate, glabrous, with laticiferous ducts. Inflorescences of compact or sessile axillary fascicles. Flowers bisexual, small; calyx generally cupshaped in flower, 5- to 6-toothed or lobed, accrescent in fruit, becoming coriaceous and colorful; petals 5 or 6, slightly connate at base, glabrous; stamens 10 in two whorls, alternate stamens often shorter, anthers globose; ovary superior, conical, 3-locular below, 1-locular above, style short. Drupes globose to barrel-shaped; fruiting calyx expanded and often reflexed.

TYPE SPECIES: *Heisteria coccinea* Jacq.

A genus of 33 species of which 3 occur in tropical Africa and the remainder in Central and South America, and 1 in the Lesser Antilles.

Heisteria coccinea Jacq., Enum. Syst. Pl. 20. 1760.

FIGURE 34.

Type: Jacquin, Select. Stirp. Amer. Hist. t. 81; no specimens known.

Syn.: *Heisteria guianensis* Engl. in C. Martius, Fl. Bras. 12(2): 15, t. 4, f. 2. 1872. (Type: Guyana in Herb. F. E. L. von Fischer (LE).)

Tree to 6 m tall. Leaves with petioles 7-10 mm long; blades ovate-oblong to elliptic, 9-14 x 3-5 cm, glabrous, apex long acuminate, base rounded or cuneate, margin entire and usually recurved. Flowers sessile or on pedicels 1-2 mm long, clustered; calyx lobes acute, 1 mm long; petals ovate-lanceolate, 2.5-3 mm long, free, glabrous within, white. Fruiting pedicels 1.5 cm long; drupes oblong, 1.2-1.5 cm long, 0.7-1 cm in diameter, truncate above, black; expanded calyx to 2.5 cm in diameter, green then yellow then deep red, persistent.

GENERAL DISTRIBUTION: Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Marie Galante, Dominica!, Martinique!.

COMMON NAMES: Bois perdrix, bois lélé.

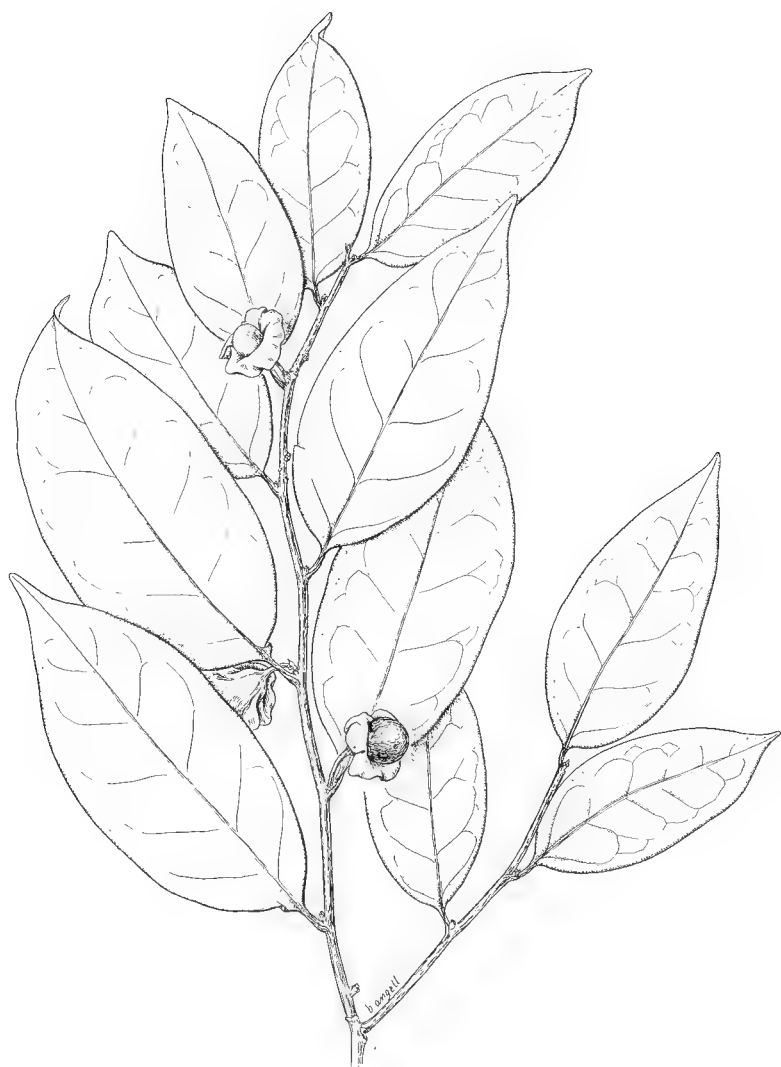


FIGURE 34. *Heisteria coccinea*: habit, x 0.47.

SCHOEPFIA Schreber

Schoepfia Schreber, Gen. Pl. ed. 8, 129. 1789.

Syn.: *Codonium* J. P. Rohr, Skr. Naturhist.-Selsk. 2(1): 206. 1792.

Shrubs or small trees. Leaves usually folded and falcate, drying black. Flowers in short racemes or clusters, often heterostylis; calyx cupshaped, united at base to ovary, subtended by 3-lobed epicalyx of 2 bracteoles; petals 4 to 6, united over half their length to form a tubular or expanded corolla, lobes valvate; stamens 4 to 6, as many as petals, adnate to corolla tube, filaments short, each with basal tuft of hairs; ovary half inferior, upper portion disklike, 1 pendulous ovule; style and stigma longer or shorter than anthers. Drupes subtended by epicalyx, crowned by disk, with annulate scar of calyx; seed 1.

TYPE SPECIES: *Schoepfia schreberi* J. Gmelin.

A genus of about 23 species, 19 in the New World and 4 in Asia and Malesia. A few species have been found to be root parasites.

Schoepfia schreberi J. Gmelin, Syst. Nat. 2(1): 376. 1791.

FIGURE 35.

Type: St. Lucia, *Crudy s.n.* (holotype, M-SCHREBER).

Syn.: *Codonium arborescens* M. Vahl, Skr. Naturhist.- Selsk. 2: 207, t. 6. 1792. (Type: St. Croix, *Rohr s.n.* (holotype, c).)

Schoepfia arborescens (M. Vahl) Schultes in Roemer & Schultes, Syst. Veg. 5: 160. 1819.

Schoepfia americana Willd., Sp. Pl. 1(2): 996. 1798, nom. illeg. based on *Codonium arborescens* M. Vahl.

Shrubs or trees to 8 m tall. Leaves with petioles 5 mm long; blades variable in shape, ovate to lanceolate, 4-8 x 1.5-3.5 cm, apex acute to acuminate, base cuneate-attenuate to obtuse, glabrous. Inflorescences of 1 to few flowers, clustered. Flowers subtended by cupule or 2 bracteoles and 1 bract, 1-3 mm in diameter, 3-toothed and ciliate; calyx cyathiform, 1 mm long, entire; corolla tube 2-4.5 mm long, yellow, 4- to 5-lobed, lobes deltoid, reddish, glabrous without, with cluster of villose hairs at point of attachment of stamens inside; ovary half inferior, globose, densely papillate, style 0.5 mm long, stigma bifid. Drupes ellipsoid, 10-13 mm long, 7-8 mm in diameter, glabrous, pink, orange or red.

GENERAL DISTRIBUTION: Florida, Bahamas, Greater Antilles, Mexico, Central America, Trinidad, Tobago, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Café-bois.

XIMENIA L.

Ximenia L., Sp. Pl. 2: 1193. 1753.

Shrubs or trees with root parasitism, some branches modified to axillary

thorns; branches glabrous. Leaves ovate or elliptic but variable in size and shape, often with curved midrib, drying black. Inflorescences simple or compound, sometimes fasciculate, bracteate. Flowers bisexual, actinomorphic, heterostylis; calyx 3- to 5-toothed; petals 4 or 5, free, covered adaxially with red-brown barbed hairs, valvate; stamens 8 to 10 in two whorls, filaments filiform, glabrous; ovary conical, 4-locular above middle, ovules pendulous, style filiform, stigma capitate. Drupes ovoid to ellipsoid, yellow or purple; seed solitary with minute embryo.

LECTOTYPE SPECIES: *Ximenia americana* L.

Eight species in the tropics and subtropics.

***Ximenia americana* L., Sp. Pl. 2: 1193. 1753.**

FIGURE 36.

Lectotype: Hort. Cliff. 483 (BM).

Syn.: *Ximenia multiflora* Jacq., Enum. Syst. Pl. 19. 1760; Select Stirp. Amer. Hist. 1: 106, t. 177. 1763. (Type: Plum., Pl. Amer. t. 261, f. 1. 1760.)

Ximenia aculeata Crantz, Inst. Rei Herb. 1: 381. 1766. (Type: Plum., Pl. Amer. t. 261, f. 1. 1760.)

Tree to 7 m tall, with thorns, often leafy. Leaves with petioles 5-7 mm long; blades ovate 3-11 x 2-4.5 cm, apex retuse or mucronulate, base obtuse to cuneate, subcoriaceous, glabrous, midrib often curved, turning black on drying. Inflorescences umbellate, often fasciculate, calyx crateriform, to 0.75 mm long, 3- to 4-toothed, ciliolate; petals 4, linear, 7-11 x 1.5-2 mm, glabrous abaxially, densely red-brown pubescent with barbed hairs adaxially; stamens 8, filaments 3-4.5 mm long, glabrous; ovary glabrous, style 3-4.5 mm long. Drupes ellipsoid, 2-3 cm long, 1.5-2.5 cm in diameter, yellow.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, Trinidad, South America to Argentina. Also found in Africa.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Lucia, St. Vincent!.

COMMON NAMES: Prune bord-de-mer, prune épice, bois puant, orange falaise, pomme-nette.

BALANOPHORACEAE

BALANOPHORACEAE L. & A. Rich., Mém. Mus. Hist. Nat. 8: 429. 1822.

Fleshy monoecious herbs, parasitic on roots of other plants, usually red-brown, with bright red tissue, without chlorophyll. Inflorescences globular, cylindric to clavate, naked or with an annulus. Flowers small, densely crowded; staminate perianth cylindrical, 3-lobed; stamens opposite lobes, filaments free or connate, anthers connate; pistillate flowers without perianth or this adnate to ovary, 2-lobed; ovary ellipsoid, 1-celled, styles 2, filiform, stigma capitate. Fruits small, drupaceous or nutlike, 1-celled, 1-seeded.

TYPE GENUS: *Balanophora* J. R. & G. Forster.



FIGURE 35 (left). *Schoepfia schreberi*: a, flowering branch, x 0.47; b, fruiting branch, x 0.47.

FIGURE 36 (right). *Ximenia americana*: a, flowering branch, x 0.47; b, fruit, x 0.47.

HELOSIS Rich.

Helosis Rich., Mém. Mus. Hist. Nat. **8**: 430, 432. 1822, nom. cons.

Fleshy herbs, glabrous, red or dull brown; rhizome elongate. Peduncles annulate at base; anthophore broadly ovoid, covered with peltate, hexagonal, valvate deciduous scales. Flowers mixed with linear-clavate hairs; staminate perianth tubular, lobes obovate, connate, valvate; stamens 3, filaments free; pistillate perianth 2-lipped, lobes triangular, obtuse; ovary elongate. Fruits nutlike.

TYPE SPECIES: *Helosis guyannensis* Rich. = *Cynomorium cayanense* Sw. = *Helosis cayanensis* (Sw.) Sprengel

A genus of 3 species in Central and South America. For more information see R. A. Howard, in *Rhodora* **61**: 79-81. 1959.

Helosis cayanensis (Sw.) Sprengel, Syst. Veg. **3**: 765. 1826.

FIGURE 37.

Basionym: *Cynomorium cayanense* Sw., Fl. Ind. Occid. **1**: 13. 1797.

Type: Cayenne, Rohr s.n. (s).

Small root parasites 3-5 cm tall, rose-purple to brown. Inflorescences ovoid to globular, to 2 cm in diameter; hexagonal scales attenuate.

GENERAL DISTRIBUTION: South America.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Lucia!.

COMMON NAME: Champignon.

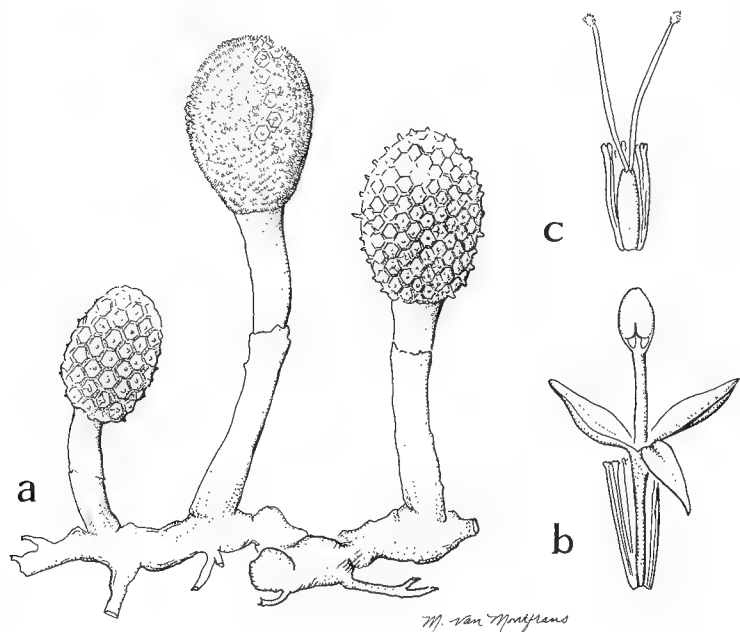


FIGURE 37. *Helosis cayensis*: a, habit x 0.7; b, staminate flower, x 12; c, pistillate flower, x 12.

ARISTOLOCHIACEAE

ARISTOLOCHIACEAE A. L. Juss., Gen. Pl. 72. 1789.

Herbaceous or woody climbers. Leaves alternate, petiolate, with or without pseudostipules developed from axillary bud; blades entire or 3-lobed, cordate, pandurate or oblong, palmately or pinnately veined. Flowers axillary, solitary or in clustered racemes, perfect, epigynous, zygomorphic; calyx gamosepalous, variously inflated, more or less constricted into neck then expanding into 1- or

2-lobed limb; corolla wanting; stamens 5 or 6, anthers sessile and adnate to styles; ovary inferior, 5- or 6-locular, ovules axile, numerous, styles 6 marginally connate, fleshy, with coroniform or subcapitate stigma lobes. Fruit a capsule, dehiscence valvate or septifragal, acropetalous or basipetalous; seeds numerous, vertically compressed in 5 or 6 rows.

TYPE GENUS: *Aristolochia* L.

A family of 7 genera and 400 species of tropical and warm temperate areas.

ARISTOLOCHIA L.

Aristolochia L., Sp. Pl. 2: 960. 1753.

Characters of the family in the Lesser Antilles.

TYPE SPECIES: *Aristolochia rotunda* L.

A genus of 350 species of tropical and temperate areas ranging from herbaceous vines to shrubs or woody perennials. For more information see H. Pfeifer, in Ann. Missouri Bot. Gard. 53: 115-196. 1966.

KEY TO THE SPECIES

1. Leaves palmately 2- or 3-lobed; perianth geniculate, 1-lobed *A. trilobata*
1. Leaves not palmately lobed.
 2. Leaves pandurate, basal lobes sagittate or auriculate, limb 1-lobed; pseudostipules wanting; perianth rectilinear.
 3. Pedicel bracteolate; limb without fimbriae *A. constricta*
 3. Pedicel ebracteolate.
 4. Limb with surficial fimbriae *A. rugosa*
 4. Limb without surficial fimbriae *A. odoratissima*
 2. Leaves cordate or oblong to obovate-oblong; pseudostipules present or not.
 5. Inflorescences clustered axillary racemes; leaves oblong or obovate-oblong *A. maxima*
 5. Inflorescences of solitary flowers; leaves cordate.
 6. Calyx limb 2-lobed; pseudostipules large; perianth geniculate.
 7. Upper perianth lobe broadly oblate-orbicular, 14-18 cm broad *A. labiata*
 7. Upper perianth lobe spatulate, 2-3 cm broad *A. ringens*
 6. Calyx 1-lobed.
 8. Limb abruptly spreading from a short tube.
 9. Perianth rectilinear.
 10. Limb 10 cm wide without long terminal appendage; pseudostipules present *A. littoralis*
 10. Limb 20-50 cm wide, extended into long tenuous appendage; pseudostipules wanting *A. grandiflora*
 9. Perianth geniculate; limb 4-6 cm wide, acute or mucronate at apex *A. odoratissima*
 8. Limb gradually expanding from tube, about 1 cm wide *A. anguicida*

***Aristolochia anguicida* Jacq., Enum. Syst. Pl. 30. 1760.**

Type: Jacq., Select. Stirp. Amer. Hist. t. 144, 1763.

Glabrous climber. Pseudostipules amplexicaul, 1 cm long; petioles 3-4 cm long; blades deeply cordate, 7-9 x 5-7 cm., apex acute or obtuse. Flowers solitary, axillary, pedicels ebracteate; perianth rectilinear, purple, green and yellow; utricle ovoid, 1 cm long, gibbous, tube straight, 1.5 cm long, limb 1-lobed, triangular, 1.5-2 x 1 cm, unappendaged. Capsules 2-3 cm long, 2 cm in diameter; dehiscence acropetal and septifragal; seeds 4 x 3 mm, 1 mm thick.

GENERAL DISTRIBUTION: Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Martinique! (probably cultivated).

COMMON NAME: Liane doux.

***Aristolochia constricta* Griseb., Abh. Königl. Ges. Wiss. Göttingen 7: 225. 1857.**

Type: Guadeloupe, *Duchassaing s.n.*

Tomentulose climber. Pseudostipules wanting; petioles > 6 cm, blades elliptic to ovate, 10-13 x 7-9 cm, apex acute, base cordate-sagittate, paler below, tomentulose. Flowers in axillary short and branched racemose clusters, pedicels bracteolate; perianth rectilinear, purple; utricle ovoid, 1-1.5 cm long, tube straight 2 cm long, gradually expanding into 1-lobed limb, limb triangular, 2.5-3.0 x 1 cm, unappendaged. Capsules ovoid, 6 cm long, 5 cm in diameter, dehiscence acropetal and septifragal exposing latticed septae; seeds 10 x 14 mm, 1 mm thick.

GENERAL DISTRIBUTION: Central America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, St. Lucia!

COMMON NAME: Liane amère.

NOTE: Pfeifer (l. c. 185) designated *Duss 4121* (NY) as the lectotype but this does not agree with Grisebach's citation; also the specimen was collected years after Duchassaing died.

***Aristolochia grandiflora* Sw., Prodr. 126. 1788.**

Lectotype: *Swartz s.n. (s)*.

Syn.: *Aristolochia gigas* Lindley, Bot. Reg. t. 60. 1842. (Type: *Hartweg s.n.*)

Aristolochia cordiflora sensu Fournet, Fl. Ill. Phan. Guad. Mart. 514. 1978.

Stout climber. Pseudostipules wanting; petioles 7 cm long; blades triangular cordate 10-20 x 8-15 cm, apex acuminate or acute, base deeply cordate. Flowers solitary; pedicels bracteolate; perianth rectilinear, purple, white, yellow, red and green; utricle obovoid, 6-18 cm long, gibbous, tube 7-15 cm long, bent in the middle, limb abruptly spreading, 1-lobed, 20-50 cm wide, to 1 m long including tapelike appendage. Capsules cylindric, to 10 cm long, 4 cm in diameter, dehiscence acropetal and septifragal; seeds 1 cm long, to 1 cm wide, 2 mm thick.

GENERAL DISTRIBUTION: Mexico, Central America.

DISTRIBUTION IN LESSER ANTILLES: Martinique (cultivated and naturalized, according to Duss, 1897).

NOTES: Pfeifer (l. c. 164) suggested that perhaps more than one species is represented in this taxon. Fournet (1978) recognized *A. grandiflora* M. Vahl (1791) which is a later homonym of *A. grandiflora* Sw. (1788) and which was renamed by Vahl as *A. ringens* in 1794, and *A. cordiflora* Mutis with *A. gigas* Lindley, and "*A. grandiflora* Sw., non Vahl" as a synonym of the latter.

Aristolochia labiata Willd., Mém. Soc. Imp. Naturalistes Moscou **2**: 101, t. 6. 1809. FIGURE 38.

Type: Willdenow's plate.

Syn.: *Aristolochia brasiliensis* C. Martius & Zucc., Nov. Gen. Sp. Pl. **1**: 77. 1824. (Type: Link & Otto s.n.)

Stout liana. Pseudostipules large, to 2.5 cm long and wide, amplexicaul, ruffled; petioles to 7 cm long; blades broadly cordate, 7-12 x 7-15 cm, apex obtuse, gray beneath. Flowers solitary; pedicels ebracteolate; perianth geniculate, mottled red, yellow, green and purple; utricle subglobose, 7 cm long, gibbous, tube straight, 4 cm long, limb bilobed, upper lobe oblate-orbicular, 13-15 x 14-18 cm, narrowly clawed, ruffled, emarginate, lower lobe narrowly lanceolate, 10-15 x 2 cm. Capsules cylindric, 4-8 cm long, 3 cm in diameter; seeds numerous, 12 x 7 mm.

GENERAL DISTRIBUTION: South America.

DISTRIBUTION IN LESSER ANTILLES: Montserrat (cultivated).

Aristolochia littoralis Parodi, Anales Soc. Ci. Argent. **5**: 155. 1878.

Type: Argentina, Parodi s.n.

Syn.: *Aristolochia elegans* Masters, Gard. Chron. n.s. **34**: 301, t. 61. 1885. (Type: Brazil. See note.)

Vigorous liana. Pseudostipules auriculate, amplexicaul, 1.5 cm; petioles 5 cm long; blades cordate reniform, 7-9 x 6-10 cm, apex obtuse, glaucous below. Flowers solitary; pedicels ebracteolate; perianth greenish-yellow and deep purple-black; utricle subcylindric, 3.5 cm long, tube bent, 3 cm long, limb 1-lobed, orbiculate abruptly spreading from tube, 10 x 10 cm. Capsules cylindric, 4.5-6.5 cm long, 2.5 cm in diameter; seeds numerous, 6 x 4 mm, 1 mm thick.

GENERAL DISTRIBUTION: Florida, Mexico, Central America.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua!, St. Kitts!, Guadeloupe!.

COMMON NAME: Duck vine.

NOTE: Masters stated that the taxon was collected by Glaziou as #13163 but that the description and the illustration were based on material grown from an introduction by Bull.

Aristolochia maxima Jacq., Enum. Syst. Pl. **30**. 1760.

Type: Jacq., Select. Stirp. Amer. Hist. t. 146. 1763.

Subglabrous climber. Pseudostipules absent; petioles 2 cm long; blades oblong



FIGURE 38. *Aristolochia labiata*: a, branch with fruit, x 0.7; b, flower, x 0.7.

to obovate-oblong 6-12 x 3-7 cm, apex obtuse and often apiculate, base obtusely truncate, glabrescent. Flowers in several-branched axillary racemose clusters; pedicels bracteolate; perianth geniculate, purple; utricle ovoid, 2.5 cm long, tube bent, 2 cm long, limb 1-lobed, ovate, 5-6 x 3-4 cm, gradually expanding from tube. Capsules very large, 10-15 cm long, 7-10 cm in diameter; dehiscence acropetal and septifragal exposing latticed septae; seeds numerous, triangular, 10 x 15 mm.

GENERAL DISTRIBUTION: Florida, Mexico, Central America.

DISTRIBUTION IN LESSER ANTILLES: Martinique.

***Aristolochia odoratissima* L., Sp. Pl. ed. 2, 2: 1362. 1763.**

Type: Sloane, Voy. Jamaica t. 104, f. 1. (typotype, BM).

Syn.: *Aristolochia pandurata* Jacq., Pl. Hort. Schoenbr. 4: 49, t. 497. 1804. (Type: Hort. Schoenbr. t. 497.)

Glabrous climber. Pseudostipules absent; petioles 2-3 cm long; blades cordate to subpandurate to triangular, 8-12 x 5-9 cm, apex acuminate, base cordate to hastate. Flowers solitary; pedicels ebracteolate; perianth geniculate, purple and yellow; utricle obovate, 3 cm long, gibbous, tube bent, 2-3 cm long, limb 1-lobed, abruptly spreading, 10-13 x 4-6 cm, tapering to acuminate apex. Capsules cylindrical, arcuate, 7-10 cm long, 1 cm in diameter, dehiscence acropetal and septifragal; seeds 3 x 2 mm, 1 mm thick.

GENERAL DISTRIBUTION: Mexico, Central America, Jamaica, St. Thomas.

DISTRIBUTION IN LESSER ANTILLES: Saba!, Guadeloupe!, Martinique!, Barbados!.

COMMON NAMES: Duck, swan.

***Aristolochia ringens* M. Vahl, Symb. Bot. 3: 99. 1794.**

Type: Jamaica, *Rohr s.n.* (BM).

Syn.: *Aristolochia grandiflora* M. Vahl, Symb. Bot. 2: 94, t. 47. 1791, not Sw., 1788. (Type: Jamaica, *Rohr s.n.* (BM).)

Stout climber. Pseudostipules oval, to 4 x 3 cm, amplexicaul, ruffled; petioles 2-3 cm long; blades broadly cordate, 7-12 x 7-15 cm, apex obtuse, glaucous beneath. Flowers solitary; pedicels ebracteolate; perianth geniculate, mottled red, yellow, green and purple; utricle subglobose, 7 cm long, tube straight, 4 cm long, limb of 2 superposed lobes, upper lobe spatulate at end, 5 cm long, lower lobe uniformly lanceolate, to 15 cm long. Capsules 8 cm long, 3 cm in diameter; seeds numerous, 12 x 7 mm.

GENERAL DISTRIBUTION: Florida, Central America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

NOTE: Vahl renamed his earlier publication of *A. grandiflora* noting that his specimen differed from that of Swartz.

Aristolochia rugosa Lam., Encycl. 1: 252. 1783.

Type: Guadeloupe, Plum., Pl. Amer. t. 33. 1756.

Syn.: *Aristolochia obtusata* Sw., Prodr. 126. 1788, nom. illeg. (Type: Plum., Pl. Amer. t. 33.)

Aristolochia barbata Jacq., Collectanea 3: 221. 1789. (Type: Venezuela, Jacq., Icon. Pl. Rar. 3: 17, t. 608. 1790.)

Aristolochia eurystoma Duchartre, Ann. Sci. Nat. Bot. 4, 2: 41. 1854. (Type: Antilles (P), collector not specified.)

Climber. Pseudostipules wanting; petioles 1 cm long; blades broadly to narrowly pandurate, constricted near middle, 8-12 x 3-7 cm, apex rounded, base deeply cordate-sagittate, pale beneath. Flowers solitary; pedicels ebracteolate; perianth rectilinear; utricle subovoid, 1 cm long, tube straight, 3 cm long, flaring to broadly spatulate limb, 2 x 1 cm, with fimbriae on upper surface. Capsules cylindric, 5 cm long, 1.5 cm in diameter, dehiscence apparently medial and septifragal; seeds 5 x 4 mm, 1 mm thick.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Martinique!, St. Vincent.

COMMON NAMES: Liane fer à cheval, marque-en-coin, tref, twef.

✓ **Aristolochia trilobata** L., Sp. Pl. 2: 960. 1753.

Type: LINN 1071.1.

Syn.: *Aristolochia trifida* Lam., Encycl. 1: 251. 1783. (Type: Guadeloupe & northern South America, no specimens or collector cited.)

Aristolochia triloba Salisb., Prodr. Stirp. Chap. Allerton 214. 1796, nom. illeg.

Glabrous stout climber. Pseudostipules suborbicular 1.5 cm long, amplexicaul; petioles 2-5 cm long; blades deeply or shallowly palmately 3-lobed, 10-15 x 3-15 cm, apex acute or rounded, base essentially truncate. Flowers solitary; pedicels ebracteolate; perianth geniculate; utricle ellipsoid, 4-15 cm long, tube bent, 5-7 cm long, limb 1-lobed, narrowly triangular, 15-20 cm long including appendage, 2-3 cm wide to threadlike. Capsules cylindric, 9 cm long, 2.5 cm in diameter, dehiscence acropetal and septifragal; seeds triangular, 8 mm long and wide, 1 mm thick.

GENERAL DISTRIBUTION: Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Tréfle caraïbe, pipe végétale, liana couresse, tref.

POLYGONACEAE

POLYGONACEAE A. L. Juss., Gen. Pl. 82. 1789.

Herbs, herbaceous or woody vines, shrubs or trees; stems often swollen at

nodes; internodes hollow or with solid pith. Stipules ocreate. Leaves petiolate, alternate, simple. Inflorescences racemes, spikes or panicles, terminal or axillary. Flowers perfect or unisexual; calyx uniseriate or biseriate, of 3 to 6 free or partially united tepals, greenish to red or white, hypanthium variously developed, either tube or lobes or both enlarging in fruit development; stamens usually 6 to 9, filaments flattened, fused near base and/or partially adnate to perianth, rudimentary or as staminodes in pistillate flowers; ovary superior, triquetrous or lenticular, unilocular, with 1 erect ovule, styles 1 to 3, stigmas 3, filiform, divided and capitate. Achenes trigonous or lenticular, invested by adherent hypanthium or enclosed by papery one or by perianth lobes; pericarp usually shiny, endosperm mealy, ruminate.

TYPE GENUS: *Polygonum* L.

Muehlenbeckia complexa (Cunn.) Meissner, *Oxyria digyna* (L.) Hill and *Triplaris caracasana* Cham. were once cultivated in the St. Pierre Botanical Garden on Martinique.

KEY TO THE GENERA

1. Herbaceous plants trailing or climbing by supra-axillary inflorescence tendrils; flowers perfect *Antigonon*
1. Plants erect, without tendrils.
 2. Herbs.
 3. Perianth segments 5, spirally arranged, not noticeably accrescent; flowers perfect; stigmas not tufted *Polygonum*
 3. Perianth segments 6, in 2 whorls, inner one accrescent, outer usually reflexed or spreading; flowers perfect, commonly in verticils; stigmas tufted *Rumex*
 2. Shrubs, trees or stout woody vines.
 4. Stems flattened as cladodes, green; leaves small, of short duration; flowers perfect, clustered along stems; cultivated (FIGURE 41) *Homalocladium platycladum* (F. Muell.) L. H. Bailey
 4. Trees, shrubs or vines; stems may be bilaterally thickened in lianoid species, but not green; plants dioecious.
 5. Outer tepals of pistillate flowers fused to form tube free from achene, 3 tepals winglike, much longer and broader in fruit; stipules entirely caducous; cultivated (FIGURE 44) *Triplaris americana* L.
 5. Fruit falsely drupaceous, usually tightly invested by enlarged hypanthium or perianth lobes; stipules ocreate, apical portion withering or caducous, basal portion commonly persistent *Coccoloba*

ANTIGONON Endl.

Antigonon Endl., Gen. Pl. 310. 1837; Hook. & Arn., Bot. Beechey Voy. 308. 1838.

Herbaceous or suffrutescent vines, trailing or climbing by tendrils developed from apex of inflorescence. Leaves cordate to deltoid, acute to acuminate; petioles terete or alate, ocreae small. Inflorescences axillary and terminal, racemes or panicles; axes pubescent, terminated by one or more simple tendrils. Flowers perfect, pedicels articulated, in ocreolate fascicles; perianth of 5 discrete unequal tepals, outer 3 broader than inner 2, green, red or white, somewhat

accrescent in fruit; stamens 8, filaments united below; ovary trigonous, styles 3, stigmas peltate. Achenes bluntly 3-angled, concealed by accrescent calyx, brown and lustrous.

TYPE SPECIES: *Antigonon leptopus* Hook. & Arn.

A genus of 8 species of tropical America.

KEY TO THE SPECIES

- Outer sepals at anthesis longer than broad, in fruit 1.5 times as long as broad; petioles > 1 cm long; ocreae caducous *A. leptopus*
Outer sepals at anthesis and in fruit as broad as long; petioles terete, shorter than sinus, < 1 cm long; ocreae persisting at base of pedicels *A. guatimalense*

***Antigonon guatimalense* Meissner in DC., Prodr. 14: 184. 1856.**

Type: Guatemala, *Velasquez s.n.*

Syn.: *Polygonum grandiflorum* Bertol., Fl. Guatimal. 412. 1840, not Willd., 1799. (Type: Guatemala, *Velasquez s.n.*)

Antigonon grandiflorum (Bertol.) Robinson, Proc. Amer. Acad. Arts 44: 613. 1909.

Leaves with petioles mostly less than 1 cm long; blades broadly cordate, 3-9 x 2.5-7 cm, abruptly acuminate at apex, base broadly cordate, cinereous pubescent below. Inflorescence rachis cinereous pubescent; pedicels 10-15 mm long, medianly articulated; tepals pink, at anthesis as long as broad, about 1 cm. Tepals broader than long when mature.

GENERAL DISTRIBUTION: Central America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

***Antigonon leptopus* Hook. & Arn., Bot. Beechey Voy. 308. t. 69. 1838.**

FIGURE 39.

Type: Mexico.

Leaves with petioles terete or alate, > 1 cm long; blades broadly ovate, 3-9 x 3-6 cm wide, apex acuminate, base deeply cordate, margin undulate or erose, pubescent. Inflorescence pedicels glabrous to pubescent, mostly articulated below middle; tepals rose, pink or white, cordate, in fruit 8-25 x 4-20 mm. Achene to 1 cm long.

GENERAL DISTRIBUTION: Mexico and Central America but now widely distributed and escaped in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua!, Saba!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Coralita, coral vine, la belle mexicaine.

NOTE: Hahn indicated on his collection (1165, P) that this was introduced from Mexico in 1849. It is now to be expected on all islands as a cultivated or escaped and persisting plant.



FIGURE 39 (left). *Antigonon leptopus*: habit, x 0.33. FIGURE 40 (right). *Coccoloba pubescens*: flowering branch, x 0.33; background, leaf from adventitious shoot, x 0.15.

COCOLOBA L.

Coccoloba P. Browne ex L., Syst. Nat. ed. 10, 2: 1007, 1367. 1759, nom. cons.

Syn.: *Coccolobis* P. Browne, Civ. Nat. Hist. Jamaica 209, pl. 14, f. 3. 1756.

Guaiabara Miller, Gard. Dict. ed. 4, 2. 1754.

Trees, shrubs or woody vines; juvenile plants or adventitious shoots commonly with relatively much larger leaves. Stipules forming ocreae with petioles arising from base of ocreae or above, upper portion membranous and withering or completely caducous. Leaves with petioles short; blades entire, usually leathery or coriaceous. Inflorescences axillary with functionally dioecious flowers in spikes or racemes, pedicels in ocreolae; staminate flowers clustered, pistillate solitary, short or increasing in length in fruit. Flowers articulated to pedicel; perianth actinomorphic or slightly irregular, of 5 green or white tepals, united at base to form hypanthium; hypanthium or tepals accrescent in fruit; stamens 8, filaments terete, united at base, rudimentary in pistillate flowers; ovary triangular, styles 3, free, rudimentary in staminate flowers. Fruits globose, ovoid or obovoid, hypanthium or perianth lobes fleshy or tepals imbricated and coronate; achenes brown or tan.

TYPE SPECIES: *Polygonum uvifera* L. = *Coccoloba uvifera* (L.) L.

A New World genus of about 400 species. When cut the trees or shrubs coppice readily, producing shoots with longer internodes and leaves generally larger in size and different in shape; these are difficult to identify except by association. Juvenile plants may also have leaves different from those of mature plants. Within populations of mature plants the size, shape and pubescence of shoots and foliage can also vary greatly. Several species are known to hybridize with *Coccoloba uvifera* and these, too, vary greatly from each other but generally suggest the alternate parent. For more information see R. A. Howard, in J. Arnold Arbor. 40: 68-93. 1959.

KEY TO THE SPECIES

1. Lianas or woody plants with scrambling branches.
 2. Scandent branches or entire plant with flattened stems through bilateral cambial activity; flowers and fruits on pedicels longer than ocreolae; fruits < 1 cm in dia. *C. dussii*
 2. Branches uniformly thickened; pedicels scarcely if at all exceeding ocreolae in flower; fruit > 1 cm in dia., on conspicuous pedicels *C. ascendens*
1. Trees or shrubs, branches not noticeably scandent.
 3. Pedicels conspicuously longer than the ocreolae in flower and fruit.
 4. Leaves basically orbicular, as broad or broader than long, one or both basal lobes overlapping petiole.
 5. Leaves conspicuously rugose and pubescent; fruit globose or ovoid, 0.5-0.6 cm long *C. pubescens*
 5. Leaves conspicuously fleshy or coriaceous, not rugose, glabrate; fruit obpyriform 1.2-2 cm long *C. uvifera*
 4. Leaves ovate to elliptic, longer than broad.
 6. Petioles arising above base of ocreae; blades auriculate at base; fruits conspicuously coronate *C. coronata*
 6. Petioles arising from base of ocreae; blades rounded or obtuse at base; perianth lobes appressed to fruit, not coronate *C. diversifolia*
 3. Pedicels shorter than or scarcely exceeding ocreolae in flower and generally in fruit.
 7. Achenes surrounded by perianth lobes; ocreolar sheath commonly elongating with pedicels; bracts usually black *C. venosa*
 7. Achenes surrounded by hypanthium; perianth lobes appressed and imbricate or coronate on achenes; bracts not conspicuously black.
 8. Perianth lobes appressed and imbricate in fruit, fruits triangular in cross section; leaves ovate to suborbicular, 2-5 cm long, cordate at base *C. krugii*
 8. Perianth lobes coronate in fruit.
 9. Leaves cordiform-ovate, broadest below middle, 11-27 x 6.5-17.5 cm, base obliquely auriculate-cordate or rounded and evenly cordate *C. × boxii*
 9. Leaves ovate to ovate-elliptic, smaller, generally narrowed below middle.
 10. Petioles arising above base of ocreae; base of blade auriculate at junction with petiole; ultimate venation not conspicuous *C. coronata*
 10. Petioles arising from base of ocreae; base of blade slightly decurrent on petiole; ultimate venation reticulate and slightly elevated *C. swartzii*

Coccoloba ascendens Duss ex Lindau, Bot. Jahrb. Syst. 13: 156. 1890.

Lectotype: Martinique, *Hahn 1005* (B).

Shrub, liana, or small tree with scandent branches, much branched, stems to 15 m. Ocreae 17-20 mm long. Leaves of normal shoots with petioles 1-2.5 cm long, glabrous; blades elliptic, obovate, or oblong 11-17 x 4.5-6 cm, coriaceous, glabrous, apex rounded, acute or emarginate, base rounded or cordate; juvenile leaves 14-20 x 7-8.5 cm; leaves of adventitious shoots 30-45 x 20-30 cm. Inflorescences axillary or terminal, 13-17 cm long; flowering pedicels 2 mm long, staminate flowers 2 or 3 per node. Fruiting pedicels 4 mm long; fruits 1.8-2.4 cm long, 1-1.2 cm in diameter, apex acute, hypanthium thick, slightly woody, often rugose or warty; achene chestnut brown, smooth, shiny.

GENERAL DISTRIBUTION: Lesser Antilles, Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.

COMMON NAMES: Liana baur, liane cacao, cuchape, raisinier grand bois, liane tordue.

Coccoloba × boxii Sandw., J. Bot. 78: 97, 98. 1940.

Type: Antigua, *Box 1497* (holotype, BM).

Tree to 8 m tall. Ocreae to 1.5 cm long, densely pubescent. Leaves with petioles 0.7-1.3 cm long; blades cordiform-ovate 11-27 x 6.5-17.5 cm, coriaceous, apex obtuse, base oblique, auriculate-cordate or rounded to nearly evenly cordate. Inflorescences 17-22 cm long, nodules 1-4 flowered; pedicels to 0.75 mm long; hypanthium 1.3 mm long, perianth lobes ovate-obtuse.

GENERAL DISTRIBUTION: Known from but two collections and possibly only one plant from Pelican Bay, Antigua. The original plant has not been relocated. A possible hybrid of *C. uvifera* with either *C. diversifolia* or *C. swartzii*.

Coccoloba coronata Jacq., Enum. Syst. Pl. 19. 1760.

Type: Jacq., Select. Stirp. Amer. Hist. t. 77. 1763.

Syn.: *Coccoloba caribaea* Urban, Symb. Antill. 5: 337. 1907. (Syntypes: St. Vincent, *Smith 1790*, *Broadway 1660*, *1760*.)

Shrub to 2 m or tree to 7 m tall. Leaves of normal shoots with ocreae 5-7 mm, petioles 8-11 mm long; blades ovate to ovate-elliptic 6-10.5 x 4-5.5 cm, thin, coriaceous, apex attenuate, base narrowly cordate; leaves of adventitious shoots obovate, 11-18 x 7-15 cm. Inflorescences on short lateral shoots 3-9 cm long; pedicels 2.5-4 mm long; hypanthium 0.75 mm long, lobes ovate. Fruits generally spherical with coronate perianth lobes, occasionally narrowed at base, 1 cm long, 5-9 mm in diameter, pedicels to 5 mm long; achene brown, shiny.

GENERAL DISTRIBUTION: Central America, Trinidad, Tobago, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, the Grenadines!, Grenada!.

Coccoloba diversifolia Jacq., Enum. Syst. Pl. 19. 1760.

Type: Jacq., Select. Stirp. Amer. Hist. t. 76. 1763.

Syn.: *Coccoloba laurifolia* sensu Lindau, Bot. Jahrb. Syst. **13**: 158. 1890, and all recent authors, not Jacq., 1798.

Shrub or small tree to 8 m tall. Ocreae 3-5 mm long. Leaves of normal shoots with petioles 7-10 mm long; blades ovate, oval, oblong, elliptic, lanceolate or obovate and variable on single branch, 4-12 x 3.5-8 cm, apex rounded, acute, obtuse to acuminate, base cuneate, rounded or subcordate; leaves of adventitious shoots and those of plants in windswept locations even more variable in leaf size and shape, 2-32 x 1.3-12.5 cm. Inflorescences terminal, 4.5-18 cm long; fruiting pedicels 3-4.5 mm long. Fruits globose to obpyriform, 10-13 mm long, 7-8 mm in diameter, apex rounded, perianth lobes imbricated in fruit and appressed; achene brown, shiny.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!.

COMMON NAMES: Chili grape.

Coccoloba dussii Lindau, Notizbl. Königl. Bot. Gart. Berlin **1**: 213. 1896.

Type: Guadeloupe, *Duss 2180* (holotype, B).

Woody vine with ascending branches; young stems terete, older flattened due to bilateral cambial activity. Ocreae 1 cm long. Leaves of normal shoots with petioles 2.5-4 cm long; blades ovate to oblong, 6.5-17 x 4.5-10.5 cm, coriaceous, glabrous, apex acute to short acuminate, base rounded to subcordate; leaves of adventitious shoots on petioles to 3.5 cm long; blades ovate to elliptic-ovate 26-30 x 16-19 cm. Inflorescences terminal or axillary, 9-15 cm long; flowering pedicels to 3 mm long; hypanthium 2 mm long. Fruiting pedicels 4-6 mm long, usually slightly reflexed; fruits short stipitate, dark blue or purple; achene dull brown, rugose, to 9 mm long, 6 mm in diameter.

GENERAL DISTRIBUTION: Lesser Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Liane tordue, raisinier marron, jacquot-brulot.

Coccoloba krugii Lindau, Bot. Jahrb. Syst. **13**: 145. 1890.

Type: Syntypes cited.

Shrub or small tree, 2-6 m tall; branches lightly geniculate and nodose. Ocreae membranaceous, 3.5-5 mm long. Leaves of normal shoots with petioles 5-6 mm long; blades ovate or suborbicular, 2-5 x 1.8-4 cm, thin, coriaceous, glabrous, apex obtuse or rounded, base cordate or rounded; leaves of adventitious shoots with petioles 1 cm long; blades cordate or rounded to 7 x 6 cm. Inflorescences terminal, 5-8 cm long; pedicels wanting or shorter than ocreolae. Fruits ovoid

or angular fusiform, strongly triangular in outline, 4-5 mm long, 3-3.5 mm in diameter; perianth lobes appressed, to 1/2 length of fruit; achene dark brown.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Barbuda!, Antigua!.

COMMON NAME: Wild grape.

NOTES: Several individuals representing presumed hybrids have been found on Anguilla while others are known within the range of the species. The Barbuda plants are of two complexes, one with a pubescent leaf and the other glabrous. The former produces an obpyriform fruit resembling that of *C. uvifera*. The glabrous one, with larger leaves than typical *C. krugii*, has a fruit resembling *C. krugii*.

Coccoloba pubescens L., Syst. Nat. ed. 10, 2: 1007. 1759.

FIGURE 40.

Type: Pluk., Phytographia 222, f. 8; typotype (BM).

Syn.: *Coccoloba grandifolia* Jacq., Enum. Syst. Pl. 19. 1760. (Type: not indicated.)

Coccoloba antiguensis Sandw., J. Bot. 78: 98. 1940. (Type: Antigua, Box 2496 (holotype, BM).)

Tree to 13 m tall. Ocreae to 1 cm long, completely caducous, pubescent. Leaves of mature plants varying considerably in size, with petioles 3-6 mm long, densely short pubescent; blades orbicular to orbicular-ovate 4-7.5 x 6-10 cm, rugose or bullate, densely pubescent abaxially, apex rounded, base cordate; adventitious shoots with leaves generally orbicular, 30-50 x 40-80 cm, terminal leaflets commonly rhombic, basal lobes often encircling stem. Inflorescences terminal, puberulent, 12-18 cm long; pedicels 2-3 mm long; hypanthium 1 mm long. Fruits globose to ovoid, 5-6 mm long, 4.5 mm in diameter; fruiting pedicels 3-4 mm long; fruiting perianth imbricate at apex, not coronate; achene subglobose, dark brown, shiny, slightly triradiate at apex.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua!, Nevis!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Mountain grape, large leaf, ti raisin, knotty knave, raisinier-grandes feuilles.

Coccoloba swartzii Meissner in DC., Prodr. 14: 159. 1856.

Lectotype: *Swartz s.n.* (G-DC).

Syn.: *Coccoloba barbadensis* sensu Lindau, Bot. Jahrb. Syst. 13: 148. 1890, and others, not Jacq., 1760.

Coccoloba diversifolia sensu Lindau in Urban, Symb. Antill. 1: 223. 1899, and recent authors, not Jacq., 1760.

Coccoloba swartzii Meissner forma *pubescens* R. Howard, J. Arnold Arbor. 30: 420. 1949. (Type: Antigua, Box 1411 (US).)

Tree to 20 m tall, young branches puberulent. Ocreae 10-12 mm long. Leaves of mature shoots with petioles 10-18 mm long; blades ovate to elliptic, 2.2-15 x 1.3-7.5 cm, coriaceous, usually drying black, noticeably reticulate veined, apex acute to rounded, base narrowed, rounded or slightly cordate, usually oblique; leaves of adventitious shoots with petioles 1.5-2.5 cm long; blades oblong to ovate-lanceolate, 23-70 x 8.5-24 cm. Inflorescences terminal, 10-15 cm long; rachis glandular pubescent; pedicels < 1.5 mm long. Fruits ovoid, 8-10 mm long, 6 mm in diameter; fruiting pedicels shorter than ocreolae; perianth lobes 1-1.5 mm long and coronate in fruit; achene dark brown.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Redwood, saltwood, wild grape, bois rouge, raisinier rouge, bois la mowie.

***Coccoloba uvifera* (L.) L., Syst. Nat. ed. 10, 2: 1007. 1759.**

Basionym: *Polygonum uvifera* L., Sp. Pl. 1: 365. 1753.

Type: Not determined.

Tree of strand areas, 2-17 m tall. Ocreae 3-8 mm long. Leaves of normal shoots with stout petioles 7-10 mm long, papillose to pilose; blades orbicular to reniform, 6-13 x 8-18 cm, thick, coriaceous, apex rounded, truncate or emarginate, base rounded to broadly cordate with one lobe extending around petiole; leaves of adventitious shoots variable in size, often obovate. Inflorescences 15-30 cm long, staminate flowers in clusters of 1 to 7, pedicels 1-2 mm long. Fruits obpyriform, 1.3-2 cm long, 8-10 mm in diameter, base narrowed, apex rounded or truncate; fruiting pedicels 3-4 mm long; perianth lobes appressed against apex of achene, rose-purple when mature; achene black.

GENERAL DISTRIBUTION: Florida, Bahamas, Greater Antilles, Mexico, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Sea grape, seaside grape, grape, raisinier bord-de-mer, wézen, bois sande.

NOTES: This species is known to hybridize with *C. diversifolia*, *C. krugii* and *C. pubescens*. In general the hybrids appear similar to the alternate parent but some produce fruit resembling *C. uvifera* in shape but sterile. In some areas the staminate plants with flowers in multiples may produce a few fruit which seem to reach full size but are hollow.

Coccoloba venosa L., Syst. Nat. ed 10, 2: 1007. 1759.

Type: Pluk., Phytographia 237, f. 4. Hb. Sloane (BM).

Syn.: *Coccoloba nivea* Jacq., Enum. Syst. Pl. 19. 1760. (Type: Select. Stirp. Amer. Hist. t. 78. 1763.)

Tree to 15 m tall. Ocreae to 2 cm long. Leaves of normal shoots with petioles 5-10 mm long; blades oblong-lanceolate to elliptic, 8-27 x 4-10.6 cm, membranous, glabrous except for clusters of hairs in axils of primary veins, apex short acuminate, base narrowed slightly cordate or obtuse; leaves of adventitious shoots about same size and shape, internodes longer, ocreae larger. Inflorescences terminal or terminal on short lateral shoots, 10-17 cm long; flowering pedicels 1-2 mm long. Fruiting pedicels 1.5-2.5 mm long; perianth lobes fleshy, white or pink enclosing achene; hypanthium scarcely evident in fruit; achene 3-4 mm long and broad, black.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Trinidad, Tobago, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Wild grape, chiggery grape, raisin-coudre.

POLYGONUM L.

Polygonum L., Sp. Pl. 1: 359. 1753.

Herbs. Leaves entire; ocreae cylindrical, mostly membranous, often fringed or flaring at apex. Inflorescence of spikelike racemes, sometimes branched; flowers compacted or loosely distributed; ocreoleae funnelform; pedicels articulated at base of calyx; sepals mostly 5; stamens 4 to 8, filaments erect or nearly so; pistil with 2 or 3 styles. Achene enclosed in perianth lobes, lenticular or three-angled or plano-convex, mostly black, shiny.

LECTOTYPE SPECIES: *Polygonum lapathifolium* L.

The genus is often divided but in its broadest sense has about 300 species of cosmopolitan distribution ranging from garden weeds to plants of wet habitats.

KEY TO THE SPECIES

1. Stipules long setose-ciliate.
 2. Tepals glandular-punctate; leaf blade glabrous or nearly so adaxially; margin ciliolate; peduncle glabrous *P. punctatum*
 2. Tepals not glandular punctate; leaf blade appressed pubescent on both surfaces; peduncle pubescent *P. acuminatum*
1. Stipules not ciliate, or only weakly so *P. densiflorum*

Polygonum acuminatum Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 2: 178. 1817.

Type: Cuman, *Humboldt*, not selected.

Syn.: *Polygonum acuminatum* Kunth var. *glabrescens* Meissner in DC., Prodr. 14: 114. 1856. (Type: Guiana, Schomburgk 370.)

Polygonum acuminatum Kunth var. *weddellii* Meissner in DC., Prodr. 14: 114. 1856. (Type: not selected.)

Perennial herb generally in swamps; stem stout, erect, to 2 m high, glabrous below, strigose above. Ocreae cylindric, 2-4 cm long, strigose, fringed with long bristles. Leaves with petioles < 1 cm long; blades lanceolate, 6-30 x 2-2.5 cm, apex long acuminate, base narrowed. Racemes few or several, 8-15 cm long, on peduncles 3-6 cm long, densely flowered; ocreolae 3 mm long, fringed; pedicels 2-4 mm long. Tepals white, 3-4 mm long. Achenes lenticular, 2-2.5 mm long, shining, black.

GENERAL DISTRIBUTION: Greater Antilles, Central America, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante!.

COMMON NAME: Piment-vache.

Polygonum densiflorum Meissner in C. Martius, Fl. Bras. 5(1): 13. 1855.

FIGURE 42.

Type: Not selected.

Syn.: *Polygonum glabrum* of some authors, not Willd., 1799.

Polygonum portoricensis Bertero ex Small, Monogr. Amer. Sp. *Polygonum* 1: 46. 1895. (Type: Bertero in hb. Balbis; cited by Meissner in synonymy of *P. densiflorum*.)

Robust trailing or erect herb to 1.5 m tall. Ocreae cylindric, to 2 cm long, membranous, sometimes weakly bristled when young, naked when mature. Leaves with petioles 1-2 cm long; blades lanceolate to linear-lanceolate, 4-30 x 1-4 cm, acuminate at both ends, obscurely punctate. Racemes 2.5-13 cm long, densely flowered, erect. Tepals white. Achenes lenticular or strongly biconvex or 3-angled, 2-3 mm long, broadly oblong, orbicular or broader than high, black, smooth and shining or minutely granular.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles, Central America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Marie Galante!, St. Lucia!.

COMMON NAME: Piment-vache.

Polygonum punctatum Elliott, Sketch Bot. S. Carolina 1: 455. 1817.

Type: Not designated.

Syn.: *Polygonum acre* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 2: 179. 1817, not Lam., 1778. (Type: "prope Havanam et Caracas," Humboldt.)

Annual or perennial, to 1.2 m tall, erect or ascending, simple or branched. Ocreae cylindric, 10-15 mm long, fringed with long bristles, caducous at maturity. Leaves with petioles 2-4 mm long; blades lanceolate or oblong-lanceolate, 3-20 x 1-1.7 cm, acuminate at both ends. Racemes 2-8 cm long, laxly flowered or



FIGURE 41 (left). *Homalocladium platycladum*: habit, x 0.33. FIGURE 42 (right). *Polygonum densiflorum*: habit, x 0.33.

geniculate, erect or drooping. Tepals greenish, sparsely to densely punctate. Achenes oblong, lenticular or 3-angled, 2.5 mm long, smooth, shining, black.

GENERAL DISTRIBUTION: United States, Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAME: Piment vache.

RUMEX L.

Rumex L., Sp. Pl. 1: 333. 1753.

Perennial or annual herb; dioecious or polygamo-dioecious; stems mostly branched. Ocreae brittle, caducous. Leaves short-petiolate, flat or crisped. Inflorescences simple or compound panicked racemes. Flowers whorled, on jointed pedicels; tepals 6, 3 outer ones unchanged in fruit, 3 inner developed into wings, 1 or all 3 bearing a callosity, wings entire, dentate or fringed with bristlelike teeth; stamens 6; style 3-parted. Achenes 3-angled, angles usually margined.

TYPE SPECIES: *Rumex patientia* L.

In the broad sense, a cosmopolitan genus of 300 species.

***Rumex crispus* L., Sp. Pl. 1: 335. 1753. -**

FIGURE 43.

Type: Hort. Cliff. (n.v.)

Glabrous perennial to 1 m tall. Petioles to 10 cm long, lower leaves oblong to oblong-lanceolate, 15-30 x 5-8 cm, upper leaves narrowly oblong or lanceolate, 7-15 cm long, apex acuminate or acute, base cordate or obtuse, the margin wavy or crisped. Panicles open, flowers loosely whorled. Fruiting pedicels twice as long as calyx wings; wings cordate 3-4 mm long, truncate or notched at base, crose dentate on margins or rarely entire, each bearing a callosity; achenes 2 mm long, dark brown.

GENERAL DISTRIBUTION: Sporadically distributed in the American tropics as a weed.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

NOTE: Fournet (1978) also reports *Rumex scutatus* L. (oseille à soupe) and *Rumex acetosa* L. (oseille) from the French islands. No specimens have been seen.



FIGURE 43 (left). *Rumex crispus*: a, flowering stem, x 0.33; b, a basal leaf, x 0.15; c, fruit x 1. FIGURE 44 (right). *Triplaris americana*: flowering branch, x 0.33.

CHENOPODIACEAE

by Elizabeth A. Kellogg

CHENOPODIACEAE Vent., Tabl. Règne Vég. 2: 253. 1799.

Annual or perennial weeds of saline habitats, sometimes fruticose to shrubby, often succulent. Leaves alternate or opposite, exstipulate, fully developed and simple or much reduced. Inflorescences cymose, these aggregated into spikes, panicles or capitula; bracts present or absent. Flowers perfect or imperfect, small, green; tepals 0 to 5, membranous or fleshy; stamens 1 to 5; ovary 1, 1-celled; styles and stigmas 1 to 3. Fruit a utricle; seed 1; embryo curved or coiled.

TYPE GENUS: *Chenopodium* L.

A family of ca. 102 genera and 1400 species, mostly halophytic.

KEY TO THE GENERA

Plants succulent; stems articulate, leaves opposite, reduced to scales *Salicornia*
Plants not succulent; stems not articulate, leaves alternate, fully developed
..... *Chenopodium*

CHENOPODIUM L.

Chenopodium L., Sp. Pl. 1: 218. 1753.

Weedy herb, annual or perennial; stems pubescent, farinose or glabrous. Leaves alternate, simple, entire to sinuate or dentate, highly variable in shape. Primary inflorescences cymose, these either single and axillary or aggregated into axillary or terminal spikes or panicles. Flowers perfect, ebracteate; tepals 5; stamens 5, alternitepalous, exceeding perianth at anthesis; filaments flattened, white, hyaline; anthers yellow, ovoid; styles and stigmas 2 or 3. Utricles thin-walled; seeds horizontally or occasionally vertically compressed (in our species), black, shining; testa smooth or ornamented.

TYPE SPECIES: *Chenopodium rubrum* L.

A temperate genus of 100 to 150 species. *C. album* L. often appears similar to *C. murale*, but the former has tepals with a clear yellow-white margin. We have seen no specimens of *C. album* from the Lesser Antilles. For more information see P. Aellen and T. Just, in Amer. Midl. Naturalist 30: 47-76. 1943; and H. A. Wahl, in Bartonina 27: 1-46. 1954.

KEY TO THE SPECIES

Plants sparsely puberulent; leaves with glandular resin dots; utricles not adherent to seed;
seed flattened to ovoid *C. ambrosioides*
Plants farinose but not pubescent; utricle adherent to seed; seed a flattened disk with
acute edges *C. murale*

Chenopodium ambrosioides L., Sp. Pl. 1: 219. 1753.

Type: Mexico, Lusitania, LINN 313.13.

Syn.: *Chenopodium spathulatum* Sieber, Herb. Martinique 92. (Type: G-DC, IDC 800. 2143: Il. 1, photo!.)

Chenopodium spathulatum var. *platyphyllum* Moq. in DC., Prodr. 13(2): 73. 1849. (Type: Martinique, Sieber.)

Chenopodium anthelminthicum L., Sp. Pl. 1: 220. 1753. (Type: Pennsylvania, Bonaria, LINN 313.15,16.)

Annual or perennial herb, cultivated or weedy, to 1 m tall, strongly aromatic, thick-rooted, much-branched; plants \pm pubescent throughout, especially on young parts; stem ribbed. Leaves with petioles to 2 cm long, winged; blades spatulate, oblanceolate, oblong-elliptic, ovate or lanceolate, to 7 (12) cm long, with resinous gland-dots, apex acute to obtuse, sometimes apiculate, base cuneate, margin entire, sinuate or shallowly dentate. Inflorescences single cymes or spikes of cymes. Tepals 0.7-1.3 mm long, glabrous or puberulent, fused about 1/2 length, free tips triangular or broadly elliptic, folded over and covering maturing fruit; ovary horizontally compressed (vertical in some flowers). Utricles not adherent to testa; seeds red-brown, ovoid, 0.7-0.8 mm long, smooth.

GENERAL DISTRIBUTION: Possibly native to Mexico and Central America; widespread and weedy worldwide in warm regions.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts, Antigua!, Saba, St. Eustatius!, St. Kitts, Montserrat, Guadeloupe!, La Désirade!, Dominica!, Martinique, St. Lucia!, St. Vincent, Grenada, Barbados!.

COMMON NAMES: Wormwood, worm bush, semen contra, boldo, thé du mexique, herbe à vers.

Chenopodium murale L., Sp. Pl. 1: 219. 1753.

FIGURE 45.

Type: Europe, LINN 313.6.

Erect perennial or long-lived annual weeds to 8 dm tall, glabrous below and farinose above, stem smooth or ribbed. Leaves with petioles to 5 cm long, not winged; blades lanceolate, ovate, deltate, or rhombic, to 9 cm long, apex acute to acuminate, generally with 3 prominent veins from base; base cuneate to obtuse; margin sharply and irregularly serrate-dentate. Inflorescences spikes or panicles of cymes. Tepals 0.8-1.2 mm long, farinose, \pm crested abaxially, fused about 1/2 length, free tips oblong to triangular, obtuse to rounded, not fully meeting over utricle. Pericarps tightly adherent to single seed, clearly mucate along radial lines; seeds round, 1.2-1.4 mm in diameter, horizontally compressed, edge acute; testa black.

GENERAL DISTRIBUTION: Worldwide, tropical and temperate.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, St. Eustatius, St. Kitts, Montserrat, Guadeloupe!, Dominica, Martinique.

COMMON NAMES: Épinard bord de mer, sprainbush.



FIGURE 45 (left). *Chenopodium murale*: flowering branch, x 0.4. FIGURE 46 (right). *Salicornia perennis*: habit, x 0.4.

SALICORNIA L.

Salicornia L., Sp. Pl. 1: 3. 1753.

Annual or perennial succulents of saline areas; stems articulated, simple or branched. Leaves opposite, decussate, reduced to two acute scales. Flowers perfect, in spikes of decussately arranged cymules, partially sunk into cavities of internodes; each node marked by encircling bract. Perianth thick, fleshy, 3- to 4-parted, closely investing ovary and stamens, stamens 1 or 2; ovary 1, styles and stigmas 2. Utricles remaining enclosed in spongy perianth, compressed; seed 1, erect, covered with hairs.

TYPE SPECIES: *Salicornia europaea* L.

A coastal or salt pan genus of about 35 species.

KEY TO THE SPECIES

- Plants annual, stiffly branching; central flower of triad clearly larger and extending to top of inflorescence joint *S. bigelovii*
 Plants perennial, stems sparsely branched; central flower of triad only slightly larger and not extending to top of inflorescence joint *S. perennis*

Salicornia bigelovii Torrey in Emory, Rep. U.S. Mex. Bound. 2(1): 184. 1858.

Based on *Salicornia mucronata* Bigelow, Fl. Boston. ed. 3, 2. 1840.

Type: Salt marshes, Boston, 1838, anon. (NEBC).

Erect branching annual, to 5 dm tall; branches ascending, glabrous, green, most terminating in a spikelike inflorescence. Inflorescence joints wider than long, 2-3 x 2.5-4.2 mm. Flowers 3 per cymule, central one extending notably higher than lateral 2, all 3 forming an obvious triangle extending to top of joint.

GENERAL DISTRIBUTION: Along the Atlantic and Gulf coasts of the United States; Caribbean.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!.

NOTES: The distinctions among the annual species of *Salicornia* are not clear, and there has been little critical work on the North American ones. This species appears to be distinct from *S. europaea* in its more upright, stiffly branching habit, but the distinction should be investigated further. We think that reports of *S. europaea* from the Lesser Antilles are all in fact referable to *S. bigelovii*.

Salicornia perennis Miller, Gard. Dict. ed. 8. 1768.

FIGURE 46.

Type: In Sheepey Island, anon. (BM, not found).

Syn.: *Salicornia ambigua* Michaux, Fl. Bor.-Amer. 1: 2. 1803. (Type: Carolina, pl.)

Rhizomatous perennial to 7 dm tall, rooting at nodes; plants glabrous, green, sometimes becoming reddish; each stem potentially terminating in spikelike inflorescence. Inflorescence joints 2-3.8 x 2.5-3.3 mm. Flowers 3 per cymule, central one only slightly larger than lateral 2 and not extending full length of joint.

GENERAL DISTRIBUTION: Coastal regions of the New World, Europe and northern Africa.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!.

NOTES: Correll and Correll (1982) have referred to this plant as *Salicornia virginica* L.; however, Linnaeus clearly indicates that *S. virginica* is an annual and in Species Plantarum, ed. 2, he regards it as a variety of *S. herbacea* (= *S. europaea* L.). Our plants must therefore be regarded as *S. perennis* Miller, as long as this is considered distinct from *S. fruticosa* L.

AMARANTHACEAE

by Elizabeth A. Kellogg

AMARANTHACEAE A. L. Juss., Gen. Pl. 87. 1789. ('*Amaranthi*').

Annual or perennial herbs to subshrubs, often weedy; monoecious or dioecious. Leaves simple, opposite or alternate, entire, exstipulate. Inflorescences cymules, spikes, heads or panicles; each flower subtended by 1 abaxial bract and 2 lateral bracteoles. Flowers small, hypogynous, perfect or imperfect; tepals 5 (3), generally white or green (occasionally rosy), free, often persistent, scarious, imbricate in bud; stamens 5 (2 or 3), opposite perianth segments; anthers 4-celled with 2 lines of dehiscence or 2-celled with 1 line of dehiscence; filaments

united below to form cup; pseudostaminodia present or absent; ovary 1, 1-celled; style 1; stigmas 1 to 3; ovules 1 to ca. 20, basal. Fruit a utricle, dehiscent or not; seeds small, ca. 1 mm in diameter; testa lustrous; embryo horseshoe-shaped, surrounding the perisperm.

TYPE GENUS: *Amaranthus* L.

A family of 65 genera and 850 to 900 species distributed throughout the temperate and tropical regions of the world. For more information, see A. Cavaco, *Mém. Mus. Natl. Hist. Nat., Sér. B, Bot.* **13**: 1-254. 1962; and *Fl. Cameroun* **17**: 1-65. 1974; K. R. Robertson, *J. Arnold Arbor.* **62**: 267-314. 1981; and C. C. Townsend, *Fl. Ceylon* **1**: 1-57. 1980.

KEY TO THE GENERA

1. Leaves alternate.
 2. Flowers in glomerules, these in spikes that may be further branched; tepals < 4 mm long.
 3. Climbing subshrubs; flowers perfect; top of ovary with upturned rim; seed arillate *Chamissoa*
 3. Herbs; plants monoecious; top of ovary rounded or thickened, but not with upturned rim; seed exarillate *Amaranthus*
 2. Flowers not glomerulate, in simple spikes; tepals > 4 mm long *Celosia*
1. Leaves opposite.
 4. Plants prostrate or mat-forming, growing on beaches or in sandy places.
 5. Leaves linear to very narrowly oblanceolate, succulent; tepals glabrous except for tuft of lanate hairs from base; pseudostaminodia obscure or absent.
 6. Stamens 2; plants rosette- and mat-forming *Lithophila*
 6. Stamens 5; plants trailing *Blutaparon*
 5. Leaves ovate to elliptic or broadly oblanceolate, not succulent; tepals glabrous or pubescent, but pubescence short, never taking the form of lanate hairs; pseudostaminodia present *Alternanthera*
 4. Plants erect or only partly decumbent; widespread weeds.
 7. Inflorescence of 1 to 3 slender spikes, each generally several dm long; flowers reflexed early in development.
 8. Flowers in spikes of glomerules; several flowers per glomerule sterile; perianth parts reduced to stiff hooked spines; bracts and bracteoles modified to hooked spines, but not rigid subulate *Cyathula*
 8. Flowers not in glomerules; sterile flowers absent; bracts white, hyaline; bracteoles rigid, subulate *Achyranthes*
 7. Inflorescence paniculate, capitate, or if spicate, then at most a few cm long; flowers not reflexed.
 9. Inflorescence a capitate head immediately subtended by pair of leaves; filament tube extending beyond ovary *Gomphrena*
 9. Inflorescence not capitate or, if so, then head not immediately subtended by pair of leaves; filament tube (and pseudostaminodia if present) forming cup shorter than ovary.
 10. Inflorescence paniculate.
 11. Panicle branches terminating in 4-7 mm hemispherical head; flowers perfect; filaments broad with lacinate edges *Pfaffia*
 11. Panicle branches spikelike, flowers not densely aggregated; flowers perfect or imperfect; filaments subulate, unequal *Iresine*

10. Inflorescence capitate or short-spicate.
12. Tepals > 2.4 mm long (except in *A. sessilis*, which should key out at lead 6) *Alternanthera*
12. Tepals < 2.4 mm long *Pfaffia*

ACHYRANTHES L.

Achyranthes L., Sp. Pl. 1: 204. 1753.

Syn.: *Centrostachys* of American authors.

Annual herbs, sometimes fruticose. Leaves opposite. Spikes terminal; bracts persistent; bracteoles 2. Flowers sessile, becoming reflexed early in development; tepals 5, stiff, persistent; stamens 5, separated by 5 fimbriate pseudostaminodia, filaments and pseudostaminodia joined below into cup; anthers dorsifixed; ovary 1-celled; style filiform; stigma glandular. Fruits thin-walled, indehiscent, remaining inside persistent calyx and bracteoles, dispersal unit thus being entire flower with awned bracteoles (but without bract, which remains attached to rachis long after fruit dispersal); seed 1, \pm cylindrical; testa thin, membranous, pale brown.

TYPE SPECIES: *Achyranthes aspera* L.

A tropical and subtropical genus of 6 species, of which 4 are African.

Achyranthes aspera L., Sp. Pl. 1: 204. 1753.

Type: See var. *aspera*

Weedy herb, becoming somewhat woody; stems obscurely angled, often collapsing above nodes on dried specimens. Spikes to 6 dm long, slender, lanate; bracts ca. 3 mm, hyaline; bracteoles membranous and suborbicular at base, central nerve protracted to tawny subulate awn. Tepals lance-elliptic, apiculate, hyaline-margined, scarious, pinkish, purplish or white; ovary turbinate, thickened and papillate above; stigma scarcely enlarged and not lobed. Fruits truncate at apex, embryo closely invested around solid perisperm.

KEY TO THE VARIETIES

- Leaf apex rounded, although sometimes apiculate; blades suborbicular, obovate; perianth < 5 mm long var. *aspera*
 Leaf apex acuminate; blades oblong to elliptic; perianth > 5 mm long var. *pubescens*

Achyranthes aspera L. var. *aspera*.

FIGURE 47.

^ Lectotype: Ceylon, Karalhaebo, hb. Hermann 2: 69. 105 (BM; (IDC 8302. 2: I. 4, photo!))

Syn.: *Achyranthes indica* (L.) Miller, Gard. Dict. ed. 8, *Achyranthes* no. 2. 1768.

Achyranthes aspera L. var. *indica* L., Sp. Pl. 1: 204. 1753.

Achyranthes obtusifolia Lam., Encycl. 1: 545. 1785. (Syntypes: "dans l'Inde," P-LAM;

IDC 6207. 546: II. 6,7, photos!.)

Achyranthes aspera L. var. *obtusifolia* (Lam.) Griseb., Fl. Brit. W. Indian Is. 62. 1859.

Centrostachys indica (L.) Standley, J. Wash. Acad. Sci. 5: 75. 1915.

Plants covered throughout with dense, spreading to appressed white trichomes. Leaves oblanceolate to orbicular, 0.5-6 cm long, lighter and more densely pubescent below, apex obtuse, apiculate, base abruptly narrowed. Tepals 3.7-4.5 mm long.

GENERAL DISTRIBUTION: Native to tropical Asia, now common throughout tropics and subtropics.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Eustatius!, Dominica!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Marie-pourrie, man-better-man, ven-ven.

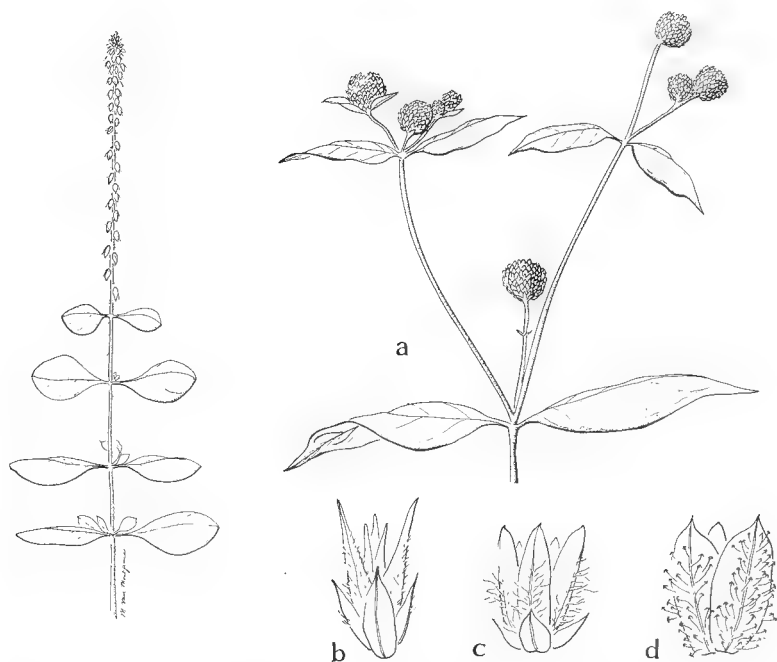


FIGURE 47 (left). *Achyranthes aspera*: habit, x 0.4. FIGURE 48 (right). *Alternanthera*: a, *Alternanthera brasiliensis*: flowering branch, x 0.46; b, *Alternanthera tenella*: flower x 22; c, *Alternanthera paronichyoides*: flower, x 2; d, *Alternanthera caracasana*: flower, x 2.

Achyranthes aspera L. var. **pubescens** (Moq.) C. Towns., Kew Bull. **29**: 473. 1974.

Basionym: *Achyranthes fruticosa* Lam. var. *pubescens* Moq. in DC., Prodr. **13**(2): 314. 1849.

Lectotype: Mexico, Tampico de Tamoulipas, 1827, *Berlandier* 79, 104 & 105 (G-DC!, all numbers on single specimen; IDC 800. 2196: III. 4, photo!).

Syn.: *Achyranthes aspera* L. var. *aspera* auct.

Achyranthes aspera L. var. *argentea* sensu Griseb., Fl. Brit. W. Indian Is. 62. 1859.

Centrostachys aspera (L.) Standley, J. Wash. Acad. Sci. **5**: 75. 1915.

Pubescence white to tawny, trichomes mostly appressed, except on rachis of inflorescence where they become long and tangled as in var. *aspera*. Leaves lanceolate, ovate or elliptic, 5-19 cm long, narrowing at both ends, acuminate, pubescent above, sericeous below. Tepals 5.2-6.2 mm.

GENERAL DISTRIBUTION: New World Tropics.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Martinique, St. Vincent!, the Grenadines!, Barbados!.

NOTES: Cavaco (1962) has pointed out that the type of Linnaeus's var. *indica* is the type for the species, and that therefore what has been known as var. *indica* should properly be called var. *aspera*; what has been called var. *aspera* must therefore have a new name, and Townsend (Kew Bull. **29**: 461-475. 1974) has provided the epithet *pubescens*.

ALTERNANTHERA Forsskål

Alternanthera Forsskål, Fl. Aegypt-Arab. 28. 1775.

Syn.: *Achyranthes* sensu Standley, J. Wash. Acad. Sci. **5**: 72. 1915, not L.

Perennial or annual weeds, herbaceous to suffrutescent; young stems and leaves often pubescent, but glabrous with age. Leaves opposite, entire. Inflorescences axillary or terminal, sessile or pedunculate. Flowers perfect; tepals 5, generally white, equilateral or outer 3 clearly longer than and enclosing inner 2; stamens 5 (3), united below; anthers oblong or ovate, 2-celled with 1 line of dehiscence; pseudostaminodia shorter or longer than stamens, subulate or ligulate, dentate to fimbriate distally; style obscure to slender; stigma capitate and globose to more or less punctate; ovule 1. Utricles indehiscent.

TYPE SPECIES: *Alternanthera sessilis* (L.) DC.

Perhaps 200 species, all tropical or subtropical. In his 1915 publication, Standley designated *Achyranthes repens* L. (= *Alternanthera repens* (L.) Link) as the lectotype species of *Achyranthes*. This necessitated wholesale transfer of the species of *Alternanthera* to *Achyranthes*, and the new combinations were used by a number of American authors. Many of the names in this treatment were transferred; for publication information on these combinations see Standley, (in J. Wash. Acad. Sci. **5**, or N. Amer. Fl. **21**, both 1915). In our area, floras following this change were Britton and Millspaugh (*Bahama Flora*, 1920), Britton (*Fl. Bermuda*, 1965), and Britton and Wilson (*Bot. Porto Rico*, 1924). In

1957, Bullock (Kew Bull. **1957**: 73-74) pointed out that the lectotype species for *Achyranthes* should in fact be *A. aspera* L. This allowed the transferred species to be returned to *Alternanthera*.

The following treatment relies heavily on the work of Mears (*in* Proc. Acad. Nat. Sci. Philadelphia **129**: 1-21. 1977, and pers. comm.).

KEY TO THE SPECIES

1. Petioles mostly well over 1 cm long, \pm as long as blade; leaves often variegated *A. bettzichiana*
1. Petioles mostly < 1 cm long, generally shorter than blade; leaves not variegated.
 2. Inflorescences pedunculate, at least some peduncles > 1 cm long; largest leaves generally > 5 cm long.
 3. Bracteoles crested and keeled, \geq tepals *A. brasiliiana*
 3. Bracteoles keeled but not crested, obviously < tepals *A. flavescens*
 2. Inflorescences sessile, or peduncle < 1 cm; largest leaves often < 5 cm long.
 4. Perianth glabrous; bracts and bracteoles < 0.8 mm; tepals < 1.8 mm; anthers generally 3 *A. sessilis*
 4. Perianth pubescent, at least below; bracts and bracteoles > 1 mm long; tepals > 2.5 mm; anthers 5.
 5. Tepals striate with 5 or more nerves; style > 0.2 mm long; stigma punctate.
 6. Leaves mostly > 3 cm long; tepals > 3.5 mm; scrambling fruticose perennial *A. olivacea*
 6. Leaves mostly < 3 cm long; tepals < 3.5 mm; taprooted trailing herb *A. geniculata*
 5. Tepals with 1 to 3, usually very prominent nerves; style < 0.2 mm; stigma capitate, globose.
 7. Leaves of a pair unequal, two or more pairs of leaves clustered beneath inflorescence; anthers ovate; pseudostaminodia shorter than stamens, dentate.
 8. Trichomes on perianth with retrorse hooks at apex .. *A. caracasana*
 8. Trichomes on perianth acuminate, not retrorsely hooked *A. paronichyoides*
 7. Leaves of a pair equal, only one pair per node; anthers oblong; pseudostaminodia longer than stamens, fimbriate.
 9. Plant trailing, rooting at nodes; leaves \pm orbicular *A. crucis*
 9. Plant spreading-ascending, but not wholly prostrate; leaves ovate to elliptic.
 10. Plants densely velutinous; largest inflorescences often > 8 mm long; bracts, bracteoles and tepals erect; tepals 2.6-4 mm *A. halimifolia*
 10. Plants glabrescent, velutinous only when young; inflorescences not < 8 mm long; bracts, bracteoles and tepals spreading; tepals 3.7-4.5 mm *A. tenella*

***Alternanthera bettzichiana* (Regel) Voss, Vilm. Blumengärtn. ed. 3, 1: 869. 1896.**

Basionym: *Telanthera bettzichiana* Regel, Index Sem. Hort. Petrop. 28. 1862; Gartenflora **11**: 178. 1862, almost simultaneous publication.

Holotype: Cultivated plant, LE (photo at K!).

Syn.: *Alternanthera amabilis* Lemaire, Ill. Hort. **12**: t. 558. 1865. (Type is illustration.)
Alternanthera sessilis (L.) R. Br. ex DC. var. *amoena* Lemaire, Ill. Hort. **12**: t. 447. 1865. (Type is illustration.)
Alternanthera articulata Stützer, Repert. Spec. Nov. Regni Veg. Beih. **88**: 43. 1935. (Type: Tobago, *Broadway 2969*, (holotype, K!; specimen marked as type is *Broadway 2968*.)
Alternanthera ficoidea (L.) Smith ssp. *bettzichiana* (Regel) Backer, Fl. Malesiana **1**(4): 594. 1949.

Erect cultivated herb to 1.5 m tall, often branched; stems and young leaves sparsely pubescent with long straight hairs more dense at nodes. Leaves with petioles to 2.5 cm long, often nearly equalling blade; blades long-elliptic to more often rhombic or suborbicular, to 3.5 cm long, base cuneate and strongly decurrent on petiole, apex acute to acuminate, apiculate, variegated green and red; margin undulate. Inflorescences sessile, axillary, hemispherical to subglobose; bracts and bracteoles ovate to elliptic, 1.4-2.8 mm long, aristate, rigid, keeled, glabrous to sparsely pubescent, spreading. Tepals white, dimorphic; outer 3 ovate to elliptic, 2.5-3.5 mm long, acuminate, apiculate, 3-nerved, spreading pubescent; inner 2 shorter, hyaline, conduplicate, somewhat pubescent below; anthers oblong; pseudostaminodia broad, dentate, shorter to longer than stamens; style < 0.2 mm long; stigma capitate.

GENERAL DISTRIBUTION: Southern Florida, Central America, South America; cultivated elsewhere in tropics.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Martinique!, Barbados!.

***Alternanthera brasiliiana* (L.) Kuntze, Revis. Gen. Pl. **1**: 537. 1891.**

FIGURE 48a.

Basionym: *Gomphrena brasiliiana* L., Cent. Pl. II. 13. 1756.

Type: "Brasilia," Breyne, Centuria, t. 52.

Syn.: *Gomphrena dentata* Moench, Suppl. Meth. 273. 1802, nom. superfl.

Mogiphanes jacquinii Schrader, Index Sem. Hort. Goet. **1834**: 4. 1834. Based on *Gomphrena brasiliensis* L. in Jacq., Icon. Pl. Rar. **2**. t. 346. 1787. No location given.

Alternanthera dentata (Moench) Stuchlik ex R. E. Fries, Ark. Bot. **16**(13): 11. 1921.

Alternanthera jacquinii (Schrader) Griseb. ex Kuntze, Revis. Gen. Pl. **1**: 537. 1891.

Erect, spreading, weedy herbaceous perennial, to 2 m high, sometimes fruticose; stems and young leaves closely covered with straight appressed tawny pubescence; inflorescence axis white tomentose. Leaves with petioles \leq 1 cm long; blades elliptic to ovate, to 5-10 cm long, green or occasionally red, base cuneate to rounded, apex acuminate. Inflorescences long-pedunculate, axillary or terminal, hemispherical or short-cylindrical; many flowers on thickened ribbed pedicels; bracts ovate to lance-acuminate, 2.8-4 mm long, mucronate, hyaline, 1-nerved; bracteoles conduplicate, 4-5.1 mm long, white, abaxially pubescent, prominently crested along fold, crest dentate, enclosing tepals. Tepals lance-oblong, (2.4) 3.2-4.3 mm long, stramineous, 3-nerved, acute, apiculate, puberulent abaxially; anthers oblong; pseudostaminodia exceeding

stamens, ligulate, dentate apically; style < 0.2 mm long, stigma capitate. Utricles oblong; seeds cylindrical, 1.6-1.8 mm in diameter, deep red.

GENERAL DISTRIBUTION: Mexico, Central America and Colombia to the Guianas, Brazil, Ecuador, and Peru.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Bouton blanc, marguerite à fleurs rouges.

Alternanthera caracasana Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 2: 205. 1818. FIGURE 48d.

Type: Caracas, *Bonpland 621* (holotype, P!).

Syn.: *Illecebrum peploides* Humb. & Bonpl. ex Willd. ex Roemer & Schultes, Syst. Veg. 5: 517. 1819. (Type: S. Domingo, *Poiteau s.n.* (holotype, P).)

Alternanthera achyrantha R. Br. var. *parvifolia* Moq. in DC., Prodr. 13(2): 359. 1849. (Lectotype: South Carolina, Charlestown, *H. Noisette s.n.* (P!).)

Alternanthera achyrantha sensu Griseb., Fl. Brit. W. Indian Is. 67. 1859, not R. Br., 1810.

Alternanthera parvifolia (Moq.) Fawcett & Rendle, Fl. Jamaica 3: 139. 1914.

Alternanthera peploides (Humb. & Bonpl. ex Willd. ex Roemer & Schultes) Urban, Repert. Spec. Nov. Regni Veg. 15: 168. 1918.

Achyranthes peploides (Willd. ex Roemer & Schultes) Britton & P. Wilson, Bot. Porto Rico 2: 279. 1924.

Spreading herb of waste places, rooting at nodes; stems, inflorescence axes and leaf axils white sericeous, mature leaves more sparsely pubescent. Leaves of pair unequal, with petioles ≤ 1 cm long; blades ovate to elliptic, most less than 2.5 cm long, base cuneate, decurrent on petiole, apex acute to obtuse, often apiculate. Inflorescences sessile, axillary, subglobose to short cylindrical; bracts and bracteoles ovate to lanceolate, 2-3.2 mm long, acuminate, mucronate, hyaline, 1- (to 3-)nerved. Flowers strongly compressed; tepals covered with stiff spreading retrorsely barbed trichomes; outer 3 tepals ovate to lanceolate, 3.5-4.5 mm long, prominently 3-nerved, acuminate, mucronate; 2 inner tepals much shorter, conduplicate, \pm falcately curved over ovary, densely covered with stiff glochidiate trichomes; anthers ovate; pseudostaminodia subulate, not ornamented, shorter than stamens; style < 0.1 mm long; stigma capitate. Utricle compressed, orbicular; seed ca. 1 mm in diameter, red-brown.

GENERAL DISTRIBUTION: Pennsylvania south across southern United States to California, Mexico, Central America, Venezuela, Ecuador, Peru, Bolivia, Colombia, Argentina, Jamaica, Santo Domingo, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Antigua!, Saba, St. Eustatius!, Guadeloupe!, Martinique!, St. Vincent!, Barbados.

Alternanthera crucis (Moq.) Bold., Fl. Dutch W. Ind. Is. 1: 58. 1909.

Basionym: *Telanthera crucis* Moq. in DC., Prodr. 13(2): 362. 1849.

Syntypes: "ins. Caribaeis," *C. Rich.* (G!; isotype, P!); St. Croix, *West s.n.* (G-DC!).

Syn.: *Telanthera martinicensis* Moq. in DC., Prodr. 13(2): 366. 1849. (Type: Martinique,

- Plée s.n.* (holotype, P!).)
- Alternanthera portoricensis* Kuntze, Revis. Gen. Pl. 2: 540. 1891. (Type: "Portorico: Guyama," Kuntze *s.n.* (NY?).)
- Alternanthera culebrasensis* Uline, Publ. Field Columbian Mus., Bot. Ser. 1: 420. 1899. (Type: Culebras Island, south shores, *Millspaugh*, Pl. Utowanae, Armour Exped. no. 607 (holotype, F).)
- Telanthera sintenisii* Urban, Symb. Antill. 1: 301. 1899. (Syntypes: Puerto Rico, *Sintenis* 1974, *Stahl* 1053 (B, presumed destroyed; isosyntypes BM!, K!, P!).)
- Alternanthera sintenisii* (Urban) Uline, Publ. Field Columbian Mus., Bot. Ser. 1: 421. 1899.
- Telanthera dolichocephala* Urban, Symb. Antill. 1: 302. 1899. (Type: Puerto Rico, *Garber* 4, (holotype, B, presumed destroyed; isotype, K!).)
- Alternanthera dolichocephala* (Urban) Urban, Symb. Antill. 4: 221. 1905.
- Alternanthera martinicensis* (Moq.) Standley, Publ. Field Columbian Mus., Bot. Ser. 8: 9. 1930.

Prostrate herb, rooting at nodes, branches geniculate; stems and leaves white sericeous. Leaves with petioles < 1 cm long; blades orbicular to ovate, most less than 1.5 (5) cm long, in pairs 1 or more cm apart along stem, not forming rosettes, base rounded to cuneate, apex rounded to acute. Inflorescences sessile, axillary, short cylindrical; bracts and bracteoles ovate to lanceolate, 1.4-2.5 mm, acuminate, mucronate, hyaline, 1-nerved. Flowers white, not strongly compressed; outer 3 tepals ovate to lance-ovate, 2.5-3.8 mm long, acute, apiculate, 3-nerved, chartaceous, covered with straight, \pm appressed, antrorsely barbed trichomes; inner 2 tepals slightly shorter, conduplicate, hyaline, 3-nerved, only sparsely pubescent below; anthers oblong; pseudostaminodia apically fimbriate, longer than stamens; style < 0.2 mm long; stigma capitate. Utricles ovoid, compressed; seed lenticular, ca. 1 mm in diameter, red-brown.

GENERAL DISTRIBUTION: Puerto Rico, St. Croix, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, Guadeloupe!, Martinique!.

Alternanthera flavescens Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 2: 207. 1818, not Moq., 1849, which = *Iresine flavescens*.

Type: Prope Cumana [Venezuela], *Bonpland* 100 (holotype, P!).

Syn.: *Alternanthera brasiliensis* of many authors.

Climbing or scrambling herb of roadsides and waste places; stems and young leaves covered with long straight appressed tawny trichomes; inflorescence axis white tomentose. Leaves with petioles to 1 cm long; blades ovate, lanceolate or elliptic, to 4-9 cm long, base rounded to cuneate, apex acute to acuminate, margin entire to occasionally minutely toothed. Inflorescences subglobose to cylindrical spikes, long-pedunculate; bracts and bracteoles ovate to lanceolate, 1.7-2.5 mm long, mucronate, persistent, 1-nerved, hyaline, sparsely to densely pubescent. Flowers often with short thick ribbed pedicels; tepals lance-oblong to ovate, 3.8-4.8 mm long, acute to acuminate, apiculate, 3-nerved, scarious, with straight appressed or spreading trichomes; anthers oblong, dorsifixed; pseudostaminodia exceeding stamens, ligulate, deeply fimbriate apically; style < 0.2 mm long; stigma capitate; ovary cylindrical.

GENERAL DISTRIBUTION: Florida, Mexico, Colombia, Venezuela, Brazil, Peru, Paraguay, West Indies.

DISTRIBUTION IN LESSER ANTILLES: Montserrat! (cultivated), Guadeloupe, Dominica!, Martinique, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

NOTES: None of the Lesser Antillean specimens appear to have set seed.

Alternanthera geniculata Urban, Symb. Antill. 7: 211. 1912, not *Achyranthes geniculata* Standley, 1915.

Type: Barahona, Santo Domingo., *Fuertes 427* (holotype, B, presumed destroyed).

Syn.: *Achyranthes urbani* Standley, J. Wash. Acad. Sci. 5: 74. 1915, *nom. illegit.*

Trailing taprooted perennial herb, geniculate at nodes, growing near sea; young stems, young leaves and inflorescence axes densely to sparsely white sericeous with long straight hairs. Leaves with petioles 5 mm long or less; blades ovate to deltate or elliptic, to 3 cm long, more or less pubescent on both surfaces, base cuneate to truncate, apex obtuse to acute, apiculate. Spikes sessile, axillary, cylindrical, < 14 mm long; bracts broadly ovate, 1-1.7 mm long, mucronate, hyaline; bracteoles similar but somewhat larger, 1.5-2 mm long. Tepals ovate to lanceolate, 2.7-3.5 mm long, acute, apiculate, 5-nerved, stiff, dark-stramineous, sparsely puberulent; anthers ovate; pseudostaminodia longer than stamens, deeply fimbriate apically; style > 0.5 mm; stigma punctate. Utricles ovoid; seed ca. 1.3 mm long, ovoid.

GENERAL DISTRIBUTION: Cuba, Hispaniola, northern Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!.

NOTES: This species is one of several that Mears (pers. comm.) has proposed for a segregate genus. See *Alternanthera olivacea* for discussion. The distinction between this species and *A. serpyllifolia* (Poiret) Urban is weak, based on presence or absence of pseudostaminodia.

Alternanthera halimifolia (Lam.) Standley in Pittier, Man. Pl. Usual. Venez. 145. 1926.

Basionym: *Achyranthes halimifolia* Lam., Encycl. 1: 547. 1785.

Type: Peru, *Dombey s.n.* (holotype, P-LAM!; isotype, P!).

Syn.: *Telanthera flavogrisea* Urban, Symb. Antill. 1: 300. 1899. (Type: In Jamaica prope Rock Fort in litoralibus, *Campbell 6059* (holotype, B, presumed destroyed).)

Alternanthera flavogrisea (Urban) Urban, Symb. Antill. 5: 340. 1907.

Alternanthera ficoidea (L.) Smith var. *flavogrisea* (Urban) Fawcett & Rendle, Fl. Jamaica 3: 140. 1914.

Similar to *Alternanthera tenella*, but mostly near sea in dry and/or saline habitats; young stems and leaves covered with velutinous pubescence of branched hairs, this extending over several internodes. Leaf blades ovate to elliptic or sometimes sub-orbicular, to 7 cm long, but more often < 2 cm long. Inflorescences (6) 8-14 mm long; bracts and bracteoles broadly ovate to elliptic 1.4-2.3 mm long, aristate to apiculate, erect. Tepals 2.6-4 mm long, smaller than in *A. tenella*.

GENERAL DISTRIBUTION: Coastal areas around Caribbean.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Grenada!.

NOTES: This species would probably be better treated as a variety of *Alternanthera tenella*. See *A. tenella* for a more detailed discussion.

Alternanthera olivacea (Urban) Urban, Symb. Antill. 5: 340. 1907.

Basionym: *Telanthera olivacea* Urban, Symb. Antill. 1: 302. 1899.

Type: St. Vincent, H. H. & G. W. Smith 1595 (holotype, B, presumed destroyed; isotype, K!).

Prostrate or scrambling fruticose perennial near shores; stems, young leaves and inflorescence axes white sericeous. Leaves with petioles < 5 mm long; blades lanceolate, ovate, or elliptic, 2.5-7.5 cm long, base rounded to cuneate, apex acute to acuminate, apiculate. Inflorescences short-pedunculate terminal spikes, to 2 cm long; bracts ovate to lanceolate, 1.4-2 mm long, acuminate, mucronate, dark-stramineous, persistent; bracteoles similar but slightly longer, 1.8-2.5 mm long. Tepals ovate to lanceolate, subequilong, 3.6-4.5 mm long, acuminate, 3- or 5-nerved, dark-stramineous, stiff, sparsely puberulent; anthers ovate; pseudostaminodia shorter than stamens, ligulate, deeply fimbriate apically; style > 0.3 mm long; stigma punctate. Utricles ovate; seed ca. 1.6 mm long, ovate.

GENERAL DISTRIBUTION: Southern Lesser Antilles, Tobago, Curaçao.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

NOTES: Mears (pers. comm.) has suggested that this species, *Alternanthera geniculata*, and *A. serpyllifolia* be placed in a segregate genus. The four characters that distinguish this genus from *Alternanthera* are: a) an elongate style and abruptly truncate stigma; b) staminodia more heavily ornamented (deeply fimbriate) than is common in *Alternanthera*; c) bracteoles consistently and noticeably longer than the bracts; and d) an inflorescence that Mears interprets as a truncate spike, rather than an elongate capitulum. These characters suggest an affinity with the Amaranthoid genera *Psilotrichum* and *Achyranthes* and Mears has suggested that the proposed segregate genus may in fact represent a bridge between the two subfamilies. He also notes that Kuntze (in Revis. Gen. Pl. 539. 1891) has observed a similarity between *Alternanthera costaricensis* (another species that should be segregated) and a young *Achyranthes*.

We do not think that, given the current evidence, these species warrant recognition as a separate genus any more than some other subgroups of *Alternanthera* (e.g., sect. *Mogiphanes* DC.). However, in proposing the new genus, Mears points up the very real problem of generic limits in the Amaranthaceae. The two subfamilies may prove to be artificial, and *Alternanthera* itself may be a highly miscellaneous assemblage.

Alternanthera paronichyoides A. St. Hil., Voy. Distr. Diam. 2: 439. 1833.

FIGURE 48C.

Type: Brazil, St. Hilaire 223 (holotype, P!).

Syn.: *Gomphrena ficoidea* L., Sp. Pl. 1: 225. 1753. (Type: "America meridionali," van

Royen s.n. (holotype, L.)

Alternanthera ficoidea (L.) Smith in Rees, Cycl. Addenda & Corrigenda, *Alternanthera* No. 8, 1818, *nom. rej.* (see Taxon 32: 316-319. 1983, and references therein); not *A. ficoidea* Beauv., 1818, which = *A. sessilis* (L.) DC.

Alternanthera polygonoides (L.) Griseb., Fl. Brit. W. Indian Is. 67. 1859. (*Illecebrum polygonoides* L., *nom. obs.* Hermann material upon which illustration cited by L. is based is found in several herbaria but is a mixture of species.)

Prostrate perennial taprooted herb of bare soil or sand, rooting at nodes; stems hirsute when young, becoming almost completely glabrous; tufts of longer trichomes in leaf axils. Leaves forming rosettes; petioles indistinct; blades oblanceolate to spatulate, less than 2.5 (5) cm long, long villous when young but soon glabrescent, apex acute, mucronulate. Flowers white in sessile, axillary clusters; bracts and bracteoles ovate, 1.3-2 mm long, hyaline, 1-nerved; tepals oblong to ovate, subequal, 2.7-3.3 (3.8) mm long, apiculate, 1- to 3-nerved, abaxially pubescent over lower 1/3 to 1/2, hairs with minute retrorse barbs; anthers ovate; pseudostaminodia shorter than stamens, broad, dentate to laciniate; style short, < 0.2 mm long, stigma capitate. Utricles ovoid to truncate, compressed, shorter than tepals; seed lenticular, ca. 1 mm in diameter, tan.

GENERAL DISTRIBUTION: Florida, Alabama, Louisiana, Mexico, British Honduras, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Barbuda!, Antigua!, Guadeloupe!, Marie Galante!, Martinique!, St. Lucia!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Herbe à la veuve, herbe à bordure.

***Alternanthera sessilis* (L.) R. Br. ex DC., Cat. Pl. Horti Monsp. 77. 1813.**

Basionym: *Gomphrena sessilis* L., Sp. Pl. 1: 225. 1753.

• Lectotype: Ceylon, hb. Hermann 2: 78 (BM).

Syn.: *Illecebrum sessile* (L.) L., Sp. Pl. ed. 2, 1: 300. 1762.

Achyranthes sessilis (L.) Desf. ex Steudel, Nomencl. Bot. ed. 2, 1: 65. 1840. Pro syn. *Alternanthera sessilis*.

Trailing or scandent herb of open places or shallow water; stems ribbed with lines of pubescence between ribs; horizontal rows of longer trichomes at nodes. Leaves with indistinct petioles; blades ovate to elliptic, to 5 cm long, sparsely pubescent below, apex acute to obtuse, base tapering. Inflorescences congested, axillary, bracts often persistent after flowers have fallen; bracts and bracteoles ovate, 0.3-0.8 mm long, mucronate, hyaline, 1-nerved. Tepals lance-ovate, 1-1.8 mm long, 1-nerved, apiculate, white, glabrous; anthers 3, ovate; pseudostaminodia subulate or dentate, equal to or shorter than filaments; style < 0.2 mm long; stigma punctate. Utricles compressed, obcordate, at maturity exceeding tepals; seed lenticular, ca. 1.2 mm in diameter, red-brown.

GENERAL DISTRIBUTION: Scattered in U. S., Mexico, Central America, Greater Antilles, South America, tropical Africa and Asia.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAME: Magloire.

NOTES: The habit of this species varies considerably depending on the environment. Mears (in litt.) notes "There are two wide-spread forms of *Alternanthera sessilis*: a graceful, large-leaved (usually) form with large internodal lengths and relatively small inflorescences — in humid to aquatic environs; and a tighter, scrubrier form with smaller leaves, shorter internodes and sometimes very large compactions of axillary inflorescences — in mesic to drier regions.

Alternanthera tenella Colla, Mem. Reale Accad. Sci. Torino **33**: 131. t. 9. 1829, (not Moq., 1849, which = *A. sessilis*). FIGURE 48b.

Type: Plant cultivated at Torino, *Colla s.n.* (lectotype, P, not found).

Syn.: *Alternanthera polygonoides* R. Br. var. *glabrescens* Griseb., Fl. Brit. W. Indian Is. 67. 1859. Based on *Telanthera ficoidea* Moq. (Lectotype: Jamaica, *Wilson s.n.* (K!)).

Alternanthera flavogrisea (Urban) Urban ssp. *diffusa* (C. Martius) Mears ex Fournet, Fl. Ill. Phan. Guad. Mart. 1001. 1978, nom. illegit.

Alternanthera ficoidea of many authors.

Spreading to ascending weedy herb; young stems and leaves covered more or less densely with branched hairs, glabrescent with age. Leaves with petioles < 1 cm long; blades ovate to elliptic, to 6.5 cm long, base cuneate, decurrent on petiole, apex acute to acuminate, mucronulate. Inflorescences sessile, axillary or terminal, 8 mm long or less; bracts and bracteoles ovate to elliptic, 2.1-3.3 mm long, acuminate, aristate, spreading, glabrous to spreading-pubescent, white, hyaline. Tepals dimorphic, outer 3 rigid, ovate to elliptic, 3.7-4.5 mm long, prominently 3-nerved, acuminate, mucronate, often two-toned, brown to green below, becoming white above, covered with spreading pubescence; inner 2 shorter, conduplicate, hyaline, sparsely to densely pubescent along fold; anthers oblong; pseudostaminodia longer than stamens, fimbriate apically; style slender, ca. 0.3 mm long, stigma capitate. Utricles ovoid; seed lenticular, ca. 1 mm in diameter, red-brown.

GENERAL DISTRIBUTION: See notes.

DISTRIBUTION IN LESSER ANTILLES: Montserrat! (cultivated), Guadeloupe!, Marie Galante, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAME: Herbe à albumine.

NOTES: *Alternanthera tenella* and *A. halimifolia* are members of a large complex spreading over much of South America. There appear to be four elements in the complex, distinguished and distributed as in the following matrix:

	hairs simple	hairs branched
	A	B
bracts and tepals longer		
bracts aristate, spreading	Brazil Paraguay	Panama Colombia

inflorescences	Bolivia	Venezuela
< 8 mm long	French Guiana	Greater Antilles
pubescent only when	Surinam	Lesser Antilles
young	Tobago	Trinidad
mostly damp and/or		
inland sites		

	C	D
bracts and tepals		Yucatan
shorter		Colombia
bracts mucronate,	Northern Venezuela	Venezuela
erect	Cubagua	Aruba
inflorescences often	Coche	Curaçao
> 8 mm long		Cuba
densely pubescent later		Jamaica
in development		Grand Turk
mostly littoral and/or		St. Thomas
saline habitats		Grenada
		Trinidad

Plants in groups C & D appear to have scattered distributions. All the characters show some intergradation although in zones of close sympatry the ranges of tepal and bract length in A & B vs. C & D do not overlap. A detailed biosystematic study would be necessary to determine whether these characters are genotypic or merely represent phenotypic plasticity. The name *Alternanthera tenella* has been applied to A, B, and D; D has also been called *A. halimifolia*, the name applied here; C is commonly known as *A. canescens*. The taxa are poorly differentiated and would probably be better reduced to the varietal level. Mears (1977) has chosen a Brazilian plant as lectotype for *A. tenella*, which suggests that if taxa A, B, C and D are to be considered varieties of that species, then A would be the typical variety. B has no published epithet, but it seems preferable to leave the naming of this group and the publication of varietal combinations until a more detailed study is done; erecting more weakly supported names in *Alternanthera* would be reprehensible.

DUBIOUS SPECIES

- Alternanthera forsstroemii* R. E. Fries, Ark. Bot. **16**(12): 12. 1921. (Type: Guadeloupe, 1804-1815, in h. Casström and Swartz (s). Lectotypification not attempted here. Description not definitive.)
- Alternanthera crassifolia* Standlëy, Proc. Biol. Soc. Wash. **32**: 241. 1919. (Type: on seashore near Santiago de Cuba, March 1919, Brother Clément 152 (holotype, NY). Description not definitive.)

AMARANTHUS L.

Amaranthus L., Sp. Pl. 2: 989. 1753.

Annual monoecious herbs, mostly weedy, erect or prostrate, simple to highly branched; stems variously green to pinkish or red, glabrous to pubescent. Leaves with petioles well developed; blades alternate, ovate, elliptic or rhombic, base cuneate, decurrent on petiole; in all Lesser Antillean species except *A. lividus* apex tapering to an obtuse or truncate, apiculate tip; primary and secondary venation often lighter colored and prominent abaxially. Inflorescences glomerules aggregated into axillary clusters and often also into terminal spikes or panicles. Flowers imperfect; tepals 3 to 5, scarious, apiculate, often persistent; stamens (2) 3 to 5, filaments slender; anthers 4-celled with 2 lines of dehiscence; style branches 2 or 3. Utricle circumscissile, opening irregularly or apparently indehiscent; seed erect, lenticular, except in cultivated species where it is ovoid.

LECTOTYPE SPECIES: *Amaranthus caudatus* L.

A tropical and temperate genus of about 50 species. The dioecious members of the genus are placed in section *Acnida*; we have not seen any members of this section in the Lesser Antilles. For more information, see J. P. M. Brenan, *Watsonia* 4: 261-280. 1961; and J. S. African Bot. 47: 451-492. 1981; and J. Sauer, *Madroño* 13: 5-46. 1955; and Ann. Missouri Bot. Gard. 54: 103-137. 1967.

KEY TO THE SPECIES

1. Plant with flowers in subglobose or hemispherical axillary clusters only.
 2. Leaf tips strongly emarginate or bilobed, notch on most leaves > 3 mm deep; tepals of pistillate flowers 3; utricles smooth, thin-walled *A. blitum*
 2. Leaf tips rounded, truncate or minutely retuse, not clearly bilobed; tepals of pistillate flowers 5; utricles tuberculate or thickened and wrinkled above.
 3. Axis of pistillate inflorescences thickened, contorted, entire inflorescence falling off as a whole; tepals of pistillate flowers free, and not overlapping, spatulate, erect, ca. = utricle; style branches 2 *A. crassipes*
 3. Axis of pistillate inflorescences not thickened, flowers falling individually; tepals of pistillate flowers fused at base, oblanceolate, flaring and extending well above mature utricle; style branches 3 on most flowers *A. polygonoides*
1. Plant with flowers in both rounded to elongate axillary clusters and elongate terminal spikes.
 4. Pairs of spines in leaf axils *A. spinosus*
 4. Leaf axils not spiny.
 5. Tepals of pistillate flowers 3, \leq utricle; stamens 3.
 6. Leaf tips strongly emarginate, bilobed; utricles smooth, thin-walled *A. blitum*
 6. Leaf tips tapering to a small obtuse or truncate, mucronulate apex; utricle tuberculate *A. viridis*
 5. Tepals of pistillate flowers 5, \geq utricle; stamens 5.
 7. Utricles rough wrinkled above, circumscissile or not, sometimes varying within one plant; tepals of pistillate flowers equilong *A. dubius*
 7. Utricles smooth, circumscissile; inner tepals of pistillate flowers shorter than outer.

8. Bracts mostly > 3.5 mm long, clearly exceeding tepals, inflorescences thus appearing bristly; seeds black to red-brown; plants weedy *A. hybridus*
8. Bracts < 3.5 mm long, < tepals; seeds black, red-brown, to more often white or tawny; cultivated or escaped, but probably not naturalized.
9. Tepals all straight at maturity *A. cruentus*
9. Tepals mostly spreading at maturity *A. caudatus*

Amaranthus blitum L., Sp. Pl. 2: 990. 1753.

Type: Europe, LINN 1117.14.

Syn.: *Amaranthus lividus* L., Sp. Pl. 2: 990. 1753. (Neotype: eighteenth century cultivated specimen (BM!); see Townsend in Kew Bull. 29: 472. 1974).

Amaranthus viridis sensu Britton & Millsp. 1920, not L., 1763.

Erect to semiprostrate weed, to 6 dm tall; stems often pinkish to deep red, glabrous. Leaves with petioles to 2.2 cm long; blades ovate, elliptic or rhombic, to 3 cm long, apex mostly strongly emarginate. Inflorescences axillary clusters and simple terminal spikes; bracts lanceolate, nearly as long as tepals. Staminate flowers developing well before pistillate, so often apparently absent from axillary inflorescences, tepals 3, ovate to elliptic, 0.8-1.3 mm long, incurved over 3 stamens, hyaline with green midnerve; pistillate flowers more numerous than staminate, tepals 3, 2 oblong to somewhat spatulate, 0.9-1.3 mm long, about 1/2 to 2/3 length of mature utricle, third tepal generally shorter, scalelike; style branches mostly 3, erect. Utricles indehiscent, smooth or somewhat wrinkled, but not clearly tuberculate, not completely filled by seed; seed lenticular, 0.8-1.2 (1.6) mm in diameter, rich red-brown.

GENERAL DISTRIBUTION: Widespread in tropics of both hemispheres.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, St. Lucia!.

NOTES: J. P. M. Brenan and C. C. Townsend (Taxon 29: 695-696. 1980) proposed rejection of the name *Amaranthus blitum* as a *nomen confusum*. This proposal was rejected (Taxon 33: 298. 1984). F. Fillias, A. A. Gaulliez and M. Guédès (Taxon 29: 149-150. 1980) suggest that the earliest combination of *A. blitum* with *A. lividus* was by J. D. Hooker, Fl. Brit. India 4: 721 (1885) under the name *A. blitum*.

Amaranthus caudatus L., Sp. Pl. 2: 990. 1753.

Lectotype: Hort. Cliff. 443, *Amaranthus* 1 (BM).

Syn.: *Amaranthus dussii* Sprenger, Bull. Soc. Tosc. Ort. 21: 178. 1896. (Type: Cultivated specimen in Naples botanic garden "dalla Isola Martinica, ...")

Robust cultivated herb to 2 m tall, occasionally escaped; stems often red; stems, young leaves and inflorescence axes pubescent with tangled white hairs. Leaves with petioles to 13 cm long, not quite as long as blade; blades elliptic to ovate, to 2.2 x 1.3 dm, although often much smaller just below inflorescence; green to red, glabrous or somewhat puberulent below, apex acute to acuminate. Inflorescences small axillary clusters and massive, lax, tail-like terminal panicles or spikes; bracts lanceolate to lance-acuminate, not exceeding tepals. Flowers

green, white, or reddish, the staminate interspersed throughout inflorescence, tepals 5, oblong, 2.5-3.2 mm long, acute; stamens 5; pistillate flowers more numerous, tepals 5, oblanceolate, 1.5-2.8 mm long, acute, inner ones somewhat shorter than outer, recurved; style branches 3, erect. Utricles circumscissile, smooth, exceeding perianth; seed ovoid, 1.1-1.5 mm long, white, tawny, reddish-brown or black, dull or lustrous.

GENERAL DISTRIBUTION: Probably originally Andean, but now cultivated and sometimes escaped throughout the world in both tropical and temperate regions.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Vincent!, Barbados!.

Amaranthus crassipes Schldl., *Linnaea* 6: 757. 1831.

Type: St. Thomas, *Ehrenberg s.n.* (holotype, B, presumed destroyed).

Prostrate herb of shores and waste places; stems light-colored, glabrous, often fleshy. Leaves with petioles \leq blade; blades ovate to elliptic, to 3.2 cm long but frequently much smaller, apex round, truncate or retuse. Inflorescences axillary, axes becoming enlarged, thick, rigid and contorted, entire inflorescence abscising at once; bracts minute. Staminate flowers shed early, tepals 5, oblong to elliptic, 0.8-1.3 mm long, acute, stamens 3 to 5; tepals of pistillate flowers (4) 5, spatulate, 1.3-1.7 mm long, obtuse at apex, about equal to mature fruit. Utricles indehiscent, somewhat fleshy, more or less tuberculate above; style branches 2, erect, somewhat flattened and pincer-like; seed ovoid, 1-1.2 mm long, dark red-brown.

GENERAL DISTRIBUTION: Native to tropical America; introduced to southeastern United States, Bahamas, and West Indies.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, Guadeloupe!, Martinique!, St. Vincent, Barbados!.

Amaranthus cruentus L., *Syst. Nat.* ed. 10, 2: 1269. 1759.

Type: "China," LINN 1117.25.

Robust herb, cultivated and occasionally escaped, in most respects similar to the weedy *Amaranthus hybridus*. Bracts equalling or less than perianth. Tepals straight, style branches erect. Treated by some authors as a variety of *A. hybridus*.

GENERAL DISTRIBUTION: Probably native to southern Mexico or Guatemala. Now cultivated and sometimes escaped throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Guadeloupe!.

Amaranthus dubius C. Martius, *Pl. Hort. Erlang.* 197. 1814, nom. nud.; C. Martius ex Thell., *Fl. Adv. Montpellier* 203. 1912.

Neotype: Hort. Erlangensi, "ex herb. Schwaegrichen, dedit Hiendlmayr" (M, not seen). (See Townsend, *Kew Bull.* 29(3): 471. 1974.)

Erect weed to 8 dm tall, sometimes becoming much branched, stout and succulent; stems green to pink, glabrous to sparsely pubescent. Leaves with petioles less to greater than length of blade; blades ovate, rhombic to lanceolate, to 9 (17) x 6 (9.5) cm. Inflorescences axillary clusters and drooping terminal spikes or panicles; bracts and bracteoles lance-acuminate to ovate with excurrent midrib, not exceeding tepals. Staminate flowers mostly on distal portion of terminal inflorescences; tepals 5, oblong-elliptic, 1.7-2 mm long, stamens 5 (4); pistillate flowers in axillary clusters and on proximal portion of terminal inflorescences, tepals 5, oblong, obtuse to acute, often emarginate, 1.3-2 mm long, style branches 2 or 3. Utricles indehiscent to circumscissile, just shorter than to slightly exceeding the perianth, smooth below, often with apparent line of dehiscence, rough-wrinkled and obtuse or truncate above; seed lenticular, 0.7-1 mm in diameter, dark red-brown or black, lustrous.

GENERAL DISTRIBUTION: Native to tropical America; introduced in tropical Africa and occasional in Europe.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Redonda!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Épinard du pays, spinach, zépinna. Eaten as a cooked green.

NOTES: Although some authors suggest that *Amaranthus tristis* Willd. (not L.) is synonymous with *A. dubius*, the description in both Willdenow and Linnaeus describes the plant as "glomerulis triandris," a description unlikely to apply to the 5-stamened *A. dubius*.

***Amaranthus hybridus* L., Sp. Pl. 2: 990. 1753.**

- Lectotype: "Virginia," LINN 1117.19.

Robust weed to 2 m tall; stems green to red; stems, young leaves and inflorescence axes more or less densely pubescent with tangled white hairs or sometimes glabrous. Leaves with petioles to 3 (10) cm long; blades ovate to lance-ovate to 7 (15) cm long. Inflorescences large axillary and terminal spikes or panicles; bracts elongate, subulate, to 4.5 mm long, exceeding perianth so that entire inflorescence appears bristly. Flowers green, white, or reddish; staminate flowers occurring in most parts of inflorescence, tepals 5, oblong, acute, 1.6-2.4 mm long, stamens 5; tepals of pistillate flowers 5, oblong, acute, unequal, the longest (outer) 1.5-2.1 mm long, spreading at maturity, shorter than utricle; style branches 3, erect. Utricles circumscissile, somewhat rugose above; seed black to dark red-brown, lustrous, lenticular, 0.8-1.1 mm in diameter.

GENERAL DISTRIBUTION: Native to eastern North America, Mexico, Central America and northern South America. Now widespread and weedy throughout the warmer regions of the world.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!.

Amaranthus polygonoides L., Pl. Jamaic. Pug. 27. 1759.

* Type: Hb. Sloane 2: 116 (BM).

Low trailing to suberect herb of beaches and waste places; stems pink to green, glaucous, pubescent with curved and tangled hairs. Leaves with petioles to 1.5 cm long but more commonly < 1/2 length of blade; blades ovate to rhombic, to 2 cm long, frequently much smaller, apex rounded, truncate or emarginate. Inflorescences axillary clusters; bracts lance-ovate, acuminate. Flowers white, the staminate few, in distal inflorescences only, tepals 5, oblong-ovate, < 1.2 mm long, acute, free, exceeded by subtending bracts, stamens 2 to 3; pistillate flowers much more numerous than staminate, tepals 5, oblong to oblanceolate, 2.2-3 mm long, > twice as long as subtending bracts, thickened below, obtuse apically, closely appressed to form tube exceeding mature utricle, flaring above; style branches 2 (3), spreading. Utricles circumscissile to indehiscent, oblong, smooth below, truncate and baggy-wrinkled above; seed lenticular, 0.7-0.9 mm in diameter, dark red-brown to black, lustrous.

GENERAL DISTRIBUTION: Florida to Texas, Mexico, northern South America, West Indies and Bahamas.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Barbados!.

Amaranthus spinosus L., Sp. Pl. 2: 991. 1753.

FIGURE 49.

* Lectotype: "Indiis," LINN 1117.27.

Weed, often large, robust and woody, to 6 dm tall; stems green, pink or red, glabrous. Leaves ovate to elliptic or rhombic, to 7 cm long, about same length as slender petiole; prophylls of axillary branches modified to form stiff spines to 1 cm long. Inflorescences axillary clusters and terminal spikes or panicles; bracts lanceolate to subulate, not exceeding perianth. Flowers white or brown, the staminate generally near tips of terminal inflorescences, tepals 5, oblong, acute, 1.6-2.1 mm long, stamens 5; pistillate flowers more numerous than staminate; tepals 5, oblong to elliptic, 1.6-2.1 mm long, apex acute to retuse; style branches 2 or 3, usually spreading. Utricles irregularly dehiscent to sometimes circumscissile; smooth below, somewhat baggy-wrinkled above seed; seed lenticular, 0.8-1.1 mm in diameter, dark red-brown, lustrous.

GENERAL DISTRIBUTION: Originally of New World tropical lowlands, now weedy elsewhere in America and in central and southern Europe, tropical Asia and Africa.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Les Saintes!, Dominica, Martinique!, St. Lucia!, St. Vincent, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Zépinna wouj.



FIGURE 49 (upper). *Amaranthus spinosus*: flowering branch, x 0.5. FIGURE 50 (lower). *Blutaparon vermiculare*: habit, x 0.5.

Amaranthus viridis L., Sp. Pl. ed. 2, 2: 1405. 1763.

- Lectotype: "Europa, Brasilia", LINN 1117.15.

Syn.: *Amaranthus gracilis* Desf., Tabl. École Bot. 43. 1804, nom. nud.

Amaranthus emarginata Salzm. ex Millsp., Publ. Field Columbian Mus., Bot. Ser.

2: 146. 1906. (Type: in cultivated grounds: New Providence — Nassau, Britton & Brace 794 (holotype, r).)

Coarse somewhat succulent weed to 1 m tall; stems pink to green, glabrous or nearly so. Leaves with petioles to 6 cm long, not quite as long as blade; blades lance-ovate to rhombic, to 8 x 6 cm. Inflorescences axillary clusters or terminal spikes or panicles; bracts ovate, hyaline, much shorter than perianth. Flowers green, the staminate few, near tips of terminal inflorescences, tepals 3, elliptic to ovate, < 1.3 mm long, acute, nodulating 2 or 3 stamens; pistillate flowers in axillary clusters and throughout terminal inflorescence, tepals 3, obovate to oblanceolate, 1.2-1.6 mm long, acute, curved around and against utricle; style branches 2 or 3. Utricles exceeding perianth, indehiscent, prominently tuberculate; seed lenticular, 0.9-1.1 mm in diameter, dark red-brown to black.

GENERAL DISTRIBUTION: Pantropical.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, St. Eustatius, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique, St. Lucia!, St. Vincent, Barbados!.

BLUTAPARON Raf.

Blutaparon Raf., New Fl. (Neobotanon) 44-45. 1838.

Syn.: *Philoxerus* R. Br., Prodr. 1: 416. 1810. As used by most authors since 1816; not in same sense as type species or original description.

Caraxeron Vaill. ex Raf., Fl. Tellur. 3: 38. 1837, p.p. *Iresine* sect. *Philoxerus* sensu Endl., Gen. Pl. 1: 301. 1837, p.p.

Prostrate herbs. Leaves opposite, entire, narrow. Heads axillary or terminal. Flowers perfect, scarious, compressed; tepals 5, thickened at base, supported by spongy stalk, outer 3 flat and broad, inner 2 narrower and incurved; stamens 5, filaments united into short cup at base; pseudostaminodia absent; anthers 2-celled with 1 line of dehiscence; ovary with short style and 2 linear stigmas; ovule 1, long-stalked. Utricles compressed, ovoid.

TYPE SPECIES: *Blutaparon repens* Raf., nom. illegit. (= *B. vermiculare* (L.) Mears, *Gomphrena vermicularis* L.)

A genus of 10 species, growing in tropical and subtropical coastal areas. For more information, see J. Mears, Taxon 31: 111-117. 1982.

Blutaparon vermiculare (L.) Mears, Taxon 31: 113. 1982.

FIGURE 50.

Basionym: *Gomphrena vermicularis* L., Sp. Pl. 1: 224. 1753.

Type: See note.

Syn.: *Philoxerus vermicularis* (L.) Smith in Rees, Cycl. 27. 1814.

Caraxeron vermicularis (L.) Raf., Fl. Tellur. 38-39. 1837.

Trailing succulent perennial of shores, diffuse with creeping branches rooting at nodes; glabrous except for tufts of long straight hairs in leaf axils. Leaves linear to oblanceolate, to 4 cm long, sessile and clasping stems, apex obtuse to acute. Inflorescences cylindrical, to 2.5 x 0.6 cm; bracts deltate to lanceolate, 1.8-2.3 mm long, acute, scarious; bracteoles 2.2-3 mm long, exceeding bracts but shorter than tepals. Tepals 3-3.5 mm long, scarious, with lanate hairs near base of abaxial side; filaments free most of their length.

GENERAL DISTRIBUTION: Florida, Texas, Mexico, Central America, northern South America to the Guianas, West Indies, Bahamas, eastern Brazil and Ecuador.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, St. Kitts, Montserrat, Guadeloupe!, Marie Galante, Les Saintes, Dominica, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

NOTES: Mears (1982) designated a Hermann specimen in hb. Sloane as lectotype, but C. E. Jarvis, curator of the Linnaean collections (pers. comm.), finds no evidence that Linnaeus ever saw the specimen or that it served as the basis of the illustration.

CELOSIA L.

Celosia L., Sp. Pl. 1: 205. 1753.

Annuals or perennials, herbaceous to shrubby. Leaves alternate; first 2 leaves of axillary branches sometimes appearing as lanceolate or falcate "stipules." Spikes with persistent bracts and bracteoles. Flowers perfect, not aggregated into glomerules; tepals 5, scarious; stamens 5, united below into cup; pseudostaminodia absent; anthers 4-celled with 2 lines of dehiscence. Utricles circumscissile, sometimes thickened above, with 2 or more seeds.

TYPE SPECIES: *Celosia argentea* L.

About 50 species of temperate and tropical regions.

KEY TO THE SPECIES

- Spikes compact, cylindrical, shining; leaves lanceolate to linear; tepals > 6 mm long; plants herbaceous; stem erect *C. argentea*
 Spikes lax, often branched; leaves deltoid or oblong-ovate; tepals < 6 mm long; plant shrubby, scrambling *C. nitida*

Celosia argentea L., Sp. Pl. 1: 205. 1753.

Lectotype: "America," LINN 288.1.

Annual herb to 12 dm tall, sometimes becoming fruticose; cultivated or weedy; glabrous. Leaves with petioles 1-24 mm long; blades lance-ovate, lance-elliptic, lanceolate or nearly linear, 2-15 cm long, decurrent on petiole, acute to acuminate, sometimes mucronulate. Spikes terminal, usually solitary, crowded, ovoid

to cylindrical, to 24 cm long, lustrous; bracts chaffy, lanceolate; bracteoles similar but shorter. Flowers on pedicels < 1 mm long; tepals lanceolate, 7-9 mm long, acute, scarious translucent, crimson or more often silvery-white; staminal cup longer than ovary; style filiform; stigma capitate, 2- or 3-lobed but not clearly divided. Utricles circumscissile; seeds 3 to 8, exarillate, black, shining; testa etched with minute regular pattern.

GENERAL DISTRIBUTION: Probably native to Asia, but weedy and cultivated throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Antigua!, St. Eustatius, St. Kitts!, Montserrat, Guadeloupe!, Dominica, Martinique!, St. Lucia!, St. Vincent!, Grenada, Barbados.

NOTES: *Celosia argentea* var. *cristata* (L.) Kuntze is the feathery-panicled or fasciculated form often found in cultivation.

Celosia nitida M. Vahl, Symb. Bot. 2: 44. 1791.

FIGURE 52.

Type: "India Occidentali," *Martfelt s.n.* (holotype, c; IDC 2201. 9: I. 3,4, photo!).

Perennial herb or scrambling undershrub of rocks, waste places and thickets; to 2 m high; glabrous throughout. Leaves with petioles 5-15 mm long; blades deltate to rhombic or oblong-ovate, 3-7 cm long, decurrent on petiole, membranous, acute to acuminate. Spikes axillary or terminal, simple to more often branched; flowers close together and sessile; bract and bracteoles ovate, somewhat cucullate, persistent, keel extended into short mucro; tepals elliptic, 4-5 mm long, acute to mucronulate, rigid, striate, membranous-margined, white to brown; staminal cup less than 1/2 length of ovary; stigmas 3. Utricles lageniform, irregularly dehiscent; seeds to 20, exarillate, black, shining; testa etched with minute pattern of regular figures.

GENERAL DISTRIBUTION: Southern United States, Mexico, West Indies and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, St. Kitts!, Guadeloupe!, Martinique!.

CHAMISSOA Kunth

Chamissoa Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 2(7): 196, t. 125. 1818, nom. cons.

Syn.: *Kokera* Adans., Fam. Pl. 2: 269, 541. 1763.

Climbing shrub. Leaves alternate. Inflorescences paniculate spikes; bracts 3, persistent. Flowers perfect, 5-merous, white or greenish; stamens 5, united below into a cup, pseudostaminodia absent; anthers 4-celled with 2 lines of dehiscence; ovary 1; stigmas 2 (rarely 3). Utricles 1-seeded, circumscissile.

TYPE SPECIES: *Chamissoa altissima* (Jacq.) Kunth, type cons.

A New World genus of 2 species, growing in tropical and subtropical regions.

Chamissoa altissima (Jacq.) Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 2: 197, t. 125. 1818, nom. cons. FIGURE 51.

Basionym: *Achyranthes altissima* Jacq., Enum. Syst. Pl. 17. 1760.

Type: Sloane, Voy. Jamaica t. 91. f. 2. 1707.

Syn.: *Celosia tomentosa* Willd. ex Roemer & Schultes, Syst. Veg. 15: 531. 1819. (Lectotype: America meridionale, *Humboldt s.n.* (B-WILLD, cat. #05033; IDC 7440. 345: I. 9, photo!)).

Climbing shrub of waste areas and thickets, often several meters long; stems ribbed, fistulose; stems and leaves generally glabrous, but sometimes sparsely pubescent with randomly scattered hairs or tomentose; inflorescence axes tomentose with long unicellular, straight to tangled hairs. Leaves with petioles to 4 (6) cm long; blades elliptic to lanceolate, to 15 cm long, apex and base acuminate, generally darker above than below. Inflorescences \pm elongate, axillary, often branched; glomerules dense to somewhat distant proximally; bracts and bracteoles ca. 1.5 mm long, keeled, sometimes distally mucronate by prolongation of keel. Tepals scarious, 2.7-4.2 mm long; stamens 5, < perianth; ovary with upturned rim near apex. Seed enveloped in loose, transparent aril; testa black, shining, finely etched with minute, regular, hexagonal pattern (just discernible at 20x).

GENERAL DISTRIBUTION: West Indies, Mexico, Central America, and scattered collections from much of tropical South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Saba, St. Kitts, Montserrat, Grenada!

NOTES: Sohmer (Bull. Torrey Bot. Club 104: 111-126. 1977) divides *Chamissoa altissima* into 2 varieties, var. *altissima* and var. *rubella*, the latter including both red-flowered forms and those green- to white-flowered plants "with a tendency to 3 stigmas and the elimination of the apical emarginate wing." We have found these characters difficult to apply on many of our specimens.

Sohmer (l.c.) places *Celosia paniculata* L. in the synonymy of *Chamissoa altissima*, citing Sp. Pl. ed. 2, 1: 298. This appears to be a different species from *Celosia paniculata* L., 1753 (Sp. Pl. 1: 206). The typification of both Linnaean names needs to be clarified to determine their correct position.

CYATHULA Blume

Cyathula Blume, Bijdr. 548. 1825, nom. cons.

Syn.: *Cyathula* Lour., Fl. Cochinch. 93, 101. 1790.

Prostrate herbs, becoming suffruticose, growing in open areas. Leaves opposite, rhombic-ovate. Inflorescences spiciform, somewhat lax. Flowers glomerulate, becoming reflexed early in development; imperfect flowers, reduced to perianth segments with rigid, hooked awns (glochidia), developing in axils of bracteoles after perfect flowers; tepals 5; stamens 5, pseudostaminodia 5, united with filaments below into a cup; anthers 4-celled, with 2 lines of dehiscence; style filiform; stigma capitate, glandular; ovule 1. Fruits indehiscent.

TYPE SPECIES: *Cyathula prostrata* (L.) Blume.

A genus of 25 to 30 species, native to the Old World tropics.

Cyathula prostrata (L.) Blume, Bijdr. 549. 1825.

FIGURE 53.

† Basionym: *Achyranthes prostrata* L., Sp. Pl. ed. 2, 1: 296. 1762.

Lectotype: "India," LINN 287.13.

Syn.: *Desmochaeta prostrata* (L.) DC., Cat. Pl. Horti Monsp. 102. 1813.

Pupalia prostrata (L.) C. Martius, Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. 13: 321. 1826.

Weedy herb to 1 m tall; sparsely to densely pubescent with long straight or bent hairs. Leaves with petioles 3-18 mm long; blades elliptic to rhombic, 2-8.5 cm long. Perfect flowers 2 or 3 per cluster, tepals of perfect flowers scarious, 1.6-2.4 mm long, mucronate, covered with long fine hairs; ovary thickened and truncate at apex; imperfect flowers yellowish and about same length as perfect flowers. Seed 1, ovate, ca. 2.5 mm long; testa pale brown, shining, smooth.

GENERAL DISTRIBUTION: Widespread weed throughout tropics.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Lucia!, St. Vincent, Grenada!.

NOTES: Adams (1972), reports *Cyathula achyranthoides* (Kunth) Moq. from Dominica, but cites no supporting specimens, and we have not seen any our-



FIGURE 51 (left). *Chamissoa altissima*: habit, x 0.45. FIGURE 52 (center). *Celosia nitida*, habit, x 0.45. FIGURE 53 (right). *Cyathula prostrata*, x 0.45.

selves. This species is distinguished from *C. prostrata* by having glochidia nearly twice as long as the fruiting perianth; its range is mostly South American but it occurs sporadically in the Greater Antilles.

GOMPHRENA L.

Gomphrena L., Sp. Pl. 1: 224. 1753.

Herbs; ours pubescent throughout with long white hairs. Leaves opposite, sessile or short-stalked, acute to acuminate, apiculate. Inflorescences axillary or terminal, cylindrical or subglobose, immediately subtended by a pair of involucre leaves; bracts somewhat cucullate, scarious, keeled, keel generally excurrent; bracteoles conduplicate, winged or crested along fold, enclosing flowers, scarious, falling with fruits. Flowers perfect; tepals 5, scarious, concave, densely lanate abaxially; staminal tube long; anthers 2-celled with 1 line of dehiscence; pseudostaminodia absent; stigmas 2, linear, erect, more or less elongate. Utricles compressed, ovoid, indehiscent, 1-seeded, membranous.

TYPE SPECIES: *Gomphrena globosa* L.

About 95 species of Central America, South America and the West Indies with the greatest diversity in Brazil. Holzhammer (Mitt. Bot. Staatssamml. München 13: 85-114; 14-15: 178-257. 1955) has revised the genus, but his treatment leaves much to be desired, and another monographic study would be valuable, particularly if it addressed variation in taxonomic characters within and between populations. Much could be learned by simply growing wild-collected seeds in a common garden.

KEY TO THE SPECIES

- Inflorescences mostly > 2 cm in diameter; bracteoles 7 - 10 mm long; plants annual, cultivated *G. globosa*
Inflorescences mostly < 1.5 cm in diameter; bracteoles < 6 mm long; plants perennial, weedy *G. serrata*

Gomphrena globosa L., Sp. Pl. 1: 224. 1753.

Lectotype: Hb. Hort. Cliff., specimen *capitulis argenteis*.

Cultivated annual, sometimes escaped. Leaves with blades ovate, elliptic, to 11 cm long, base decurrent on short petiole, apex acute to acuminate, apiculate. Inflorescences hemispherical or short cylindrical, to 2.5 cm long and almost as broad; bracts ovate, 4-6 mm long; bracteoles 7-10 mm long, strongly winged, denticulate. Tepals 5-6 mm long.

GENERAL DISTRIBUTION: Widespread in cultivation throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Antigua!, St. Eustatius, St. Kitts, Montserrat, Guadeloupe!, Dominica, Martinique!, St. Lucia, St. Vincent, Grenada, Barbados!.

NOTES: The lectotype was designated by C. C. Townsend, in Fl. Ceylon 1: 55. Feb. 1980. J. A. Mears (Taxon 29: 85-95. Feb. 1980) simultaneously designated

the specimen on pg. 86 of the "bound Hortus siccus of Clifford." Wijnands (Botany of the Commelyns, p. 32. 1983) points out some confusion in Mears' lectotypification; we are accordingly following Townsend.

Gomphrena serrata L., Sp. Pl. 1: 224. 1753.

FIGURE 54.

- Neotype: Vera Cruz, *Houston s.n.*, (BM).

Syn.: *Gomphrena decumbens* Jacq., Pl. Hort. Schoenbr. 4: 41, t. 482. 1804. (Type: Jacquin's plate.)

Gomphrena dispersa Standley, Contr. U. S. Natl. Herb. 18: 91. 1916. (Type: Cuba, Pinar del Rio, Sierra de Anafe, at the edge of a cultivated field, December 1911, Wilson & León 11485 (US).)

Perennial from firm taproot, erect or partly decumbent. Leaves with blades oblanceolate to elliptic, to 5 cm long, decrescent distally, base long-cuneate, decurrent on short, indistinct petiole, apex acute to acuminate, often apiculate. Inflorescences ovate to cylindrical, 0.6-2.7 cm long, to 1.3 cm broad; bracts ovate, 1.3-2.2 mm long; bracteoles more or less laciniate above, although often obscurely so, (3.1) 3.7-5.7 mm long, white to rosy. Tepals (2.5) 3.5-5 mm long.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, Lesser Antilles, Bolivia, Paraguay.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Kitts, Montserrat, St. Lucia!

NOTES: Although we follow Mears (in Taxon 29: 87. 1980) in claiming that *Gomphrena serrata* is distinct from the South American *G. celosioides* C. Mar-



FIGURE 54 (left). *Gomphrena serrata*, x 0.45. FIGURE 55 (right). *Lithophila muscoides*, x 0.37.

tius, the distinction between the two taxa seems weak. The characters most commonly used to separate the two are the elongate inflorescence and early caducous flowers of *G. celosioides*. However, we have seen numerous West Indian specimens that also have caducous flowers in the inflorescence.

IRESINE Browne

Iresine P. Browne, Civ. Nat. Hist. Jamaica 358. 1756, nom. cons.

Syn.: *Rosea* C. Martius, Nov. Gen. Sp. Pl. 2: 58. 1826.

Trommsdorffia C. Martius, ibid. 40. t. 136.

Ireneis Moq. in DC., Prodr. 13(2): 349. 1849.

Erect or scrambling herbs to subshrubs; more or less pubescent on stem, leaves and inflorescence axes; nodes tending to be flattened and with line of longer hairs. Leaves opposite, petiolate. Flowers minute, perfect or dioecious, in axillary and terminal panicles of spikes; bracts and bracteoles persistent. Tepals 5, with short straight or long tangled hairs from base; stamens 5; filaments united below to form cup; anthers 2-celled with 1 line of dehiscence; pseudo-staminodia present or not; stigmas 2 (rarely 3), nearly sessile; ovule 1.

TYPE SPECIES: *Iresine celosioides* Nutt. = *I. diffusa* Humb. & Bonpl. ex Willd.

About 80 species of Australia and the Americas.

KEY TO THE SPECIES

1. Bracts and bracteoles keeled and apiculate; bracteoles > 1.5 mm long, about = tepals; flowers perfect *I. angustifolia*
1. Bracts and bracteoles hyaline, neither keeled nor apiculate; bracteoles < 1 mm long, much < tepals; flowers perfect or not.
 2. Flowers perfect; trichomes at base of tepals stiff, straight; leaves coriaceous *I. argentata*
 2. Plants dioecious; trichomes at base of tepals wavy; leaves membranous or succulent, but not coriaceous.
 3. Perianth trichomes ca. 2x as long as tepals; leaves acute to acuminate, green, membranous, lanceolate to elliptic; weedy scrambling or erect herb *I. diffusa*
 3. Perianth trichomes shorter than tepals; leaves rounded to strongly retuse and bilobed, succulent, variegated, green, yellow, red, or white, ovate to suborbicular; erect or procumbent herb, cultivated or escaped *I. herbstii*

Iresine angustifolia Euphrasen, Beskr. St. Barthél. 165. 1795.

Type: UPS, not seen.

Syn.: *Iresine elatior* Rich. ex Willd., Sp. Pl. 4: 766. 1806. (Type: Guadeloupe, St. Croix, Antigua, anon. (B-WILLD, cat. #18362; IDC 7440. 1335: II. 7, 8, 9; III. 1, 2, photo!))

Iresine celosioides Sw., Observ. Bot. 376. 1791, not L., 1763. (Type: s, not seen.)

Weedy scrambling shrub of thickets or open areas, to 3 m high; stems sparsely pubescent, particularly at nodes, these sometimes collapsing when dried. Leaves with petioles 0.4-1.8 cm long; blades ovate, lanceolate to linear, to 2.5-9 (15) cm long, base cuneate, apex acute to more often acuminate, sparsely puberulent

abaxially. Flowers perfect in leafless or somewhat leafy inflorescences; rachis of spikes lanate; bracts ovate, 0.9-1.2 mm long, scarious, stramineous to brown, strongly keeled, keel excurrent; bracteoles oblong-ovate, 1.6-2 mm long, keeled, keel excurrent to form short flexuous awn; tepals oblong-ovate, 1.4-2 mm long, 1-nerved, apiculate; white lanate hairs from base much longer than perianth, these plicate inside bracteoles and so appearing shorter until flower is shed; stamens of unequal length. Seed lenticular, ca. 0.7 mm in diameter, dark red-brown, lustrous.

GENERAL DISTRIBUTION: West Indies, Panama, Colombia, Ecuador, Brazil.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba, St. Eustatius!, St. Kitts, Redonda!, Montserrat!, Guadeloupe!, Dominica, Martinique!, St. Lucia, St. Vincent, Grenada, Barbados.

Iresine argentata (C. Martius) D. Dietr., Syn. Pl. 1: 870. 1839.

Basionym: *Trommsdorffia argentata* C. Martius, Nov. Gen. Sp. Pl. 2: 41, t. 139. 1826.

Type: Puerto Rico (M, not seen).

Syn.: *Achyranthes nodosa* Bertero ex C. Martius, Nov. Gen. Sp. Pl. 2: 41. 1826, *nom. nud.*

Alternanthera argentata (C. Martius) Moq. in DC., Prodr. 13(2): 352. 1849.

Erect or scrambling shrub, cultivated in Lesser Antilles; young stems, petioles and inflorescence axes densely pubescent with appressed silvery to tawny trichomes. Leaves with petioles to 1 cm long; blades ovate to elliptic, 3-10 (12) cm long, coriaceous, glabrous or pubescent, base rounded, apex acuminate to acute, obtuse or emarginate. Flowers perfect; rachis of spikes tomentose; bracts and bracteoles cuplike, 0.5-0.7 mm long, hyaline, densely villous when young, 1-nerved; tepals oblong, 1.7-2.2 mm long, obtuse, strongly 3-nerved, scarious; basal hairs stiff, straight, just longer than perianth; pseudostaminodia obscure.

GENERAL DISTRIBUTION: Puerto Rico, Colombia and Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Martinique (Fournet, 1976).

Iresine diffusa Humb. & Bonpl. ex Willd., Sp. Pl. 4: 765. 1806. FIGURE 56.

Type: Peru, *Humboldt s.n.* (holotype, B-WILLD, cat. #18356; IDC 7440. 1335: I. 8, 9, photo!).

Syn.: *Iresine canescens* Humb. & Bonpl. ex Willd., Sp. Pl. 4: 765. 1806. (Type: America meridionale, *Humboldt s.n.* (holotype, B-WILLD, cat. #18359; IDC 7440. 1335: II. 4, photo!).)

Iresine celosia L., Fl. Jamaic. 1759 and Syst. Nat. ed. 10, 2: 1291. 1759, *nom. illegit.*

Iresine celosioides L., Sp. Pl. ed. 2, 2: 1456. 1763, *nom. illegit.*

Iresine elongata Humb. & Bonpl. ex Willd., Sp. Pl. 4: 765. 1806. (Type: America meridionale, *Humboldt s.n.* (holotype, B-WILLD, cat. #18357; IDC 7440. 1335: II. 1, 2, photo!).)

Iresine celosioides L. var. *pubescens* Moq. in DC., Prodr. 13(2): 347. 1849. (Type: Based on a cultivated plant.)

Scrambling or erect herb to 2 m tall, of dry waste places; dioecious or rarely monoecious; stems glabrous to sparsely pubescent, frequently with denser line of pubescence at flattened nodes. Leaves with petioles 5-45 mm long; blades

ovate to lanceolate, to 3-11 cm long; base rounded to cuneate, decurrent on petiole, apex acute to acuminate, glabrous on both surfaces to sparsely pubescent abaxially. Rachis of spikes pubescent; bracts ovate, 0.3-0.6 mm long, hyaline, shining, nonkeeled, bracteoles 0.5-0.8 mm long, hyaline, nonkeeled. Tepals of staminate flowers ovate to oblong, 0.8-1.3 mm long, not clearly nerved, hyaline; stamens 5; filaments of unequal length; tepals of pistillate flowers oblong, 0.9-1.1 mm long, strongly 3-nerved, enveloped in basally attached lanate hairs several times longer than perianth; stigmas 2 (or 3), linear, curved toward each other; ovule 1. Seed lenticular, 0.5-0.6 mm in diameter, red-brown, lustrous.

GENERAL DISTRIBUTION: Southern United States, West Indies, Central America and tropical South America south to Argentina.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

Iresine herbstii J. D. Hook. ex Lindley, Gard. Chron. 654. 1864.

Type: Described from plants in cultivation.

Erect or procumbent herb, cultivated or escaped; dioecious; sparsely pubescent throughout with much longer trichomes at flattened nodes. Leaves with petioles to 3 (5) cm long; blades ovate to suborbicular, to 5 (6.5) cm long, base cuneate to rounded, apex strongly retuse, divided portion often 1/3 to 1/2 length of blade; veins prominent; blades variegated, green, white, yellow or red, sparsely pubescent on both surfaces or abaxially only, succulent. Rachis of spikes sparsely pubescent; bracts ovate, hyaline, nonkeeled, 0.5-0.6 mm long; bracteoles oblong, 0.8-1 mm long. Tepals lanceolate to oblong, 0.9-1.5 mm long, obtuse, hyaline, not strongly nerved, basal hairs shorter than perianth. Seed 0.5 mm in diameter.

GENERAL DISTRIBUTION: Native to Brazil; naturalized in southern Mexico and in the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

LITHOPHILA Sw.

Lithophila Sw., Prodr. 1, 14. 1788.

Perennial herbs, more or less villous throughout. Leaves mostly in basal tufts. Flowers perfect, in spikes or heads, with 1 bract and 2 bracteoles; perianth compressed, tepals 5; stamens 2; filaments connate below to form a cup; anthers 2-celled with 1 line of dehiscence; pseudostaminodia reportedly 3, but generally obscure; ovary ovoid, compressed; style short, stigmas 2; ovule 1, on long funiculus. Seed lenticular, smooth.

LECTOTYPE SPECIES: *Lithophila muscoides* Sw.

About 4 species of the West Indies and Galapagos.

Lithophila muscoides Sw., Prodr. 14. 1788.

FIGURE 55.

Type: Navassa Insula inter Hispaniolam et Jamaicam, *Swartz s.n.* (holotype, s, not seen; isotype, BM!).

Syn.: *Achyranthes linearifolia* Sw. ex Wikström, Kongl. Vetensk. Acad. Handl. 1825-1826: 428. 1826. (Type: St. Barts, *Forsström s.n.* (s, not seen).)

Alternanthera caribaea Moq. in DC., Prodr. 13(2): 354. 1849. (Type: Guadeloupe, *Beaupertuis 1839* (holotype, P!).)

Iresine linearis Moq. in DC., Prodr. 13(2): 339. 1849. (Type: St. Barts, *Swartz s.n.* (s, not seen).)

Lithophila muscoides Sw. var. *longifolia* Griseb., Fl. Brit. W. Indian Is. 66. 1859. Based on *Alternanthera caribaea* Moq.

Lithophila muscoides Sw. var. *brevifolia* Griseb., Fl. Brit. W. Indian Is. 66. 1859. Based on *Achyranthes linearifolia* Sw.

Lithophila muscoides Sw. ssp. *macrantha* Urban var. *linearifolia* (Sw.) Urban, Symb. Antill. 5: 338. 1907.

Lithophila muscoides Sw. ssp. *macrantha* Urban var. *platyphylla* Urban, Symb. Antill. 5: 338. 1907. (Syntypes: Martinique, *Duss 586b*, *Duss 801* (b, presumed destroyed).)

Plant prostrate from thick woody taproot, rosette and mat-forming; glabrous except for tufts of long straight white hairs in leaf axils, and sometimes long hairs scattered on leaves and stem. Leaves opposite, linear to narrowly oblanceolate, to 5 cm long, narrow, apex obtuse to acute, bases clasping stem. Spikes axillary or terminal, cylindrical, usually < 1 cm long, but occasionally to 2 cm; bracts ovate, 1.2-1.3 mm long, white, scarious, persistent; bracteoles similar, 1.4-2 mm long; tepals subequal, 1-2.7 mm long, scarious, the outer obtuse, the inner acute, abaxially lanate near base.

GENERAL DISTRIBUTION: West Indies and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba, St. Eustatius, St. Kitts!, Redonda!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Martinique!, St. Lucia!, the Grenadines!.

PFAFFIA C. Martius

Pfaffia C. Martius, Nov. Gen. Sp. Pl. 2: 20, t. 122. 1826.

Herbs or subshrubs, generally with thick roots; hermaphrodite or monoecious; more or less pubescent throughout. Leaves opposite, sessile or short-petiolate. Flowers in heads or spikes arranged in diffuse, axillary or terminal panicles; bracts scarious. Tepals 5, white or green, with long straight hairs from base, hairs as long as perianth; stamens 5; filaments connate into tube below, extended above in 5 lobes with lacinate edges or lobed; anthers 2-celled with 1 line of dehiscence; pseudostaminodia absent; stigma sessile or nearly so, capitate. Utricles indehiscent, 1-seeded.

TYPE SPECIES: *Pfaffia glabrata* C. Martius (as figured in *t.* 122, l. c.)

About 50 species, predominantly South American; a good candidate for monographic study. Analysis of character variation within and between populations, and common garden work to assess character plasticity would be both feasible and informative.

***Pfaffia iresinoides* (Kunth) Sprengel, Syst. Veg. Cur. Post. 4(2): 106. 1827.**

FIGURE 57.

Basionym: *Alternanthera iresinoides* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 2: 209. 1818.

Type: Cumana, *Bonpland s.n.* No specimen found in P-HBK, P-JU, BM, or C (Vahl).

Scrambling herb or subshrub; pubescent throughout with short appressed white or tawny hairs. Leaves with petioles not over 1 cm long; blades ovate to lanceolate, to 11 cm long, base cuneate, apex acute to acuminate, pubescent on both surfaces. Inflorescences axillary and terminal diffuse panicles of short cylindrical or subglobose heads 4-7 mm long (or reduced to groups of pedunculate heads); bracts and bracteoles similar, ovate, 0.9-1.0 mm long, scarious with excurrent keel. Flowers perfect; tepals oblong, 1.8-2.4 mm long, strongly 3-nerved, with long straight hairs. Seeds shining, ca. 0.5 mm in diameter.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, Colombia, Venezuela, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, St. Lucia!

COMMON NAME: Twenty-one shilling.

NOTES: Fournet (1976) reports that this species is cultivated in pots as a medicinal herb.

NYCTAGINACEAE

by Elizabeth A. Kellogg

NYCTAGINACEAE A. L. Juss., Gen. Pl. 90. 1789, *nom. cons.* ('Nyctagines').

Trees, shrub or herbs, sometimes scandent; stems often swollen at nodes, sometimes with axillary spines. Leaves alternate, opposite or subopposite, simple, petiolate, exstipulate, entire. Flowers actinomorphic, perfect or unisexual, bracteate; bracts often expanded to form an involucre enclosing 1 to several flowers; petals lacking; sepals 5, fused, at least bases persistent in fruit; stamens 1 to 10; filaments commonly united below; ovary superior, 1-celled. Fruit a 1-seeded anthocarp, often glandular.

TYPE GENUS: *Nyctago* A. L. Juss., *nom. illeg.* = *Mirabilis* L.

A predominantly tropical family of about 30 genera and some 300 species. There are numerous problems with delimitation of tribes, genera and species,



FIGURE 56 (left). *Iresine diffusa*, x 0.37. FIGURE 57 (right). *Pfaffia iresinoides*, x 0.37.

problems that need to be addressed by careful morphological work with particular attention to the variation of taxonomic characters within individuals and populations. For more information, see A. L. Bogle, *J. Arnold Arbor.* **55**: 1-37. 1974; J. J. Fay, *Fl. Veracruz* **13**: 1-54. 1980; A. Heimerl, *Nat. Pflanzenfam.* ed. 2, **16c**: 86-134. 1934; P. C. Standley, *Contr. U. S. Natl. Herb.* **13**: 377-430. 1911; and P. C. Standley, *Field Mus. Nat. Hist., Bot. Ser.* **11**: 73-126. 1931.

KEY TO THE GENERA

1. Woody plants.
 2. Involucral bracts > 2 cm long, colored; perianth > 1.5 cm long; leaves alternate *Bougainvillea*
 2. Involucral bracts < 1.5 mm long, green; perianth < 5 mm long; leaves opposite or subopposite *Pisonia*
1. Herbs
 3. Calyx petaloid, > 4 cm long; involucral bracts sepaloid, > 7 mm long; anthocarpis ovoid *Mirabilis*
 3. Calyx only distally petaloid, < 8 mm long; bracts lanceolate or lance-linear, < 5.1 mm long; anthocarpis cuneiform, clavate or fusiform *Boerhavia*

BOERHAVIA L.

Boerhavia L., Sp. Pl. 1: 3. 1753.

Sprawling much-branched weedy herbs; nodes swollen. Leaves opposite or subopposite; raphides linear, prominent. Inflorescence terminal or axillary, paniculate or reduced to a pedunculate capitulum; branches and flowers each subtended by a hyaline bract. Flowers perfect, pedicellate or subsessile; calyx constricted above ovary, limb 5-lobed, flaring, white, yellowish, pink or red, caducous; stamens 1 to 3; stigma 1, capitate. Anthocarps clavate, cuneiform or fusiform, 5-ribbed, green.

LECTOTYPE SPECIES: *Boerhavia erecta* L.

A genus of 3 to 30 species of pantropical weeds. This genus would be an excellent candidate for biosystematic study. For more information, see F.R. Fosberg, in Smithsonian Contr. Bot. 39: 1-20. 1978.

KEY TO THE SPECIES

1. Anthocarps glabrous, pedicellate; flowers white to pinkish.
 2. Erect annuals; flowers in few-flowered dichasia; anthocarps truncate, cuneiform, without large knoblike glands, < 4 mm long *B. erecta*
 2. Sprawling perennials; flowers 5 to 12 in terminal umbel; anthocarps apically rounded, clavate with several large knoblike glands near apex, > 9 mm long *B. scandens*
1. Anthocarps glandular, sessile; flowers red to purple.
 3. Inflorescences axillary, < 5 cm long, flowers 6 to 12 in dense pedunculate head; inflorescence branches puberulent *B. coccinea*
 3. Inflorescences terminal or axillary, 8-33 cm long, paniculate; flowers in clusters of 2 to 4 (to 7) at ends of panicle branches; inflorescence axes glabrous *B. diffusa*

Boerhavia coccinea Miller, Gard. Dict. ed. 8, *Boerhavia* no. 4. 1768.

FIGURE 59.

Type: Jamaica, *Houston s.n.* (BM!).

Syn.: *Boerhavia hirsuta* Jacq., Hort. Bot. Vindob. 3, t. 7. 1776-7, nom. illegit.

Boerhavia caribaea Jacq., Observ. Bot. 4: 5, t. 84. 1771. (Type: Jacquin's plate, drawn from a live plant in Martinique.)

Boerhavia diffusa of some authors, not L., 1753.

Perennial herb from thick caudex, to 2 m tall, puberulent throughout. Leaves with petioles 0.3-1.3 mm long; blades suborbicular, broadly ovate, ovate or elliptic, 1.1-3.9 x 0.8-3.1 cm, margins and abaxial veins ciliate with multicellular hairs, apex rounded to acute, base rounded, truncate or cuneate. Inflorescences axillary, simple or few-branched, 0.9-4.2 cm long, with flowers sessile or nearly so, 6 to 12 in terminal subcapitate clusters; branches subtended by lanceolate bracts 3-5.1 mm long, 0.9-1.7 mm long below individual flowers, hyaline. Calyx 1.7-2.1 mm long, limb 0.6-0.8 mm long, red; stamens 1 to 3. Anthocarps obovoid, 2.1-2.8 mm long, green, 5-ribbed, glandular-puberulent.

GENERAL DISTRIBUTION: Pantropical.

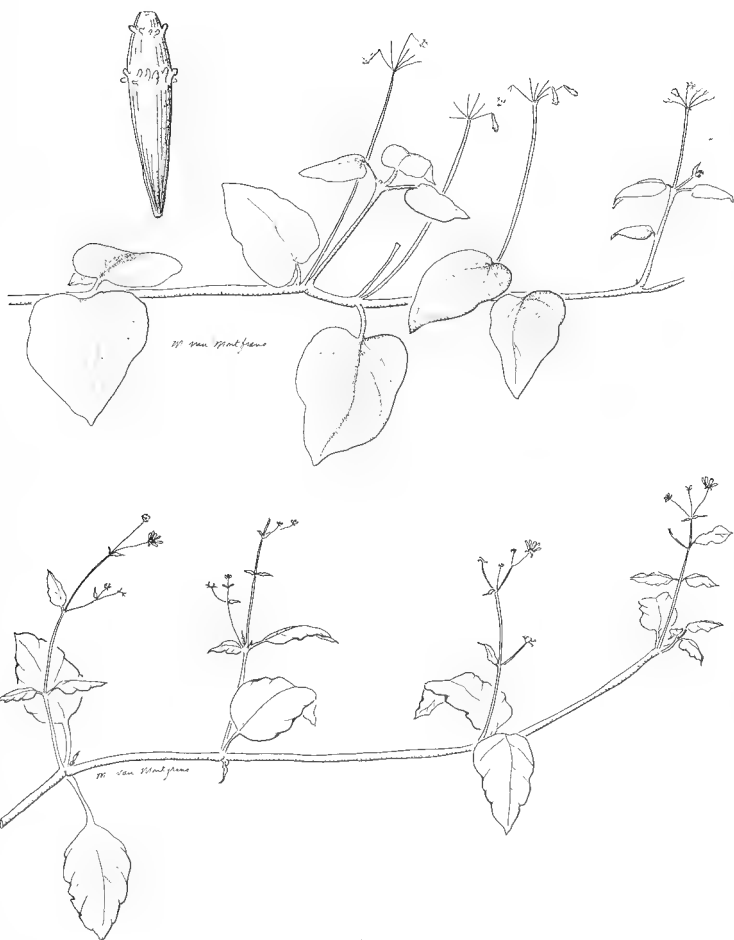


FIGURE 58 (upper). *Boerhavia scandens*, x 0.5, fruit x 3. FIGURE 59 (lower). *Boerhavia coccinea*, x 0.5.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Barbuda!, Antigua!, Saba!, St. Eustatius, St. Kitts!, Montserrat, Guadeloupe!, Dominica!, Martinique, St. Lucia!, St. Vincent!, Grenada!, Barbados.

COMMON NAME: Hogweed.

***Boerhavia diffusa* L., Sp. Pl. 1: 3. 1753.**

Type: Not designated.

Syn.: *Boerhavia paniculata* Rich., Actes Soc. Hist. Nat. Paris 1: 105. 1792. (Type: Cayenne, *LeBlond s.n.* (P, not seen).)

Boerhavia coccinea sensu Standley, N. Amer. Flora 21: 205. 1918, not Miller, 1768.

Boerhavia coccinea var. *paniculata* (Rich.) Mosc., Cat. Fl. Doming. 180. 1943.

Perennial herb, to 2 m tall; stems puberulent, especially at nodes. Leaves with petioles 0.4-3.0 cm long, puberulent; blades ovate, elliptic or suborbicular, 1.2-5.0 x 1.1-4.3 cm, glabrous adaxially, sparsely ciliate with multicellular hairs on margins and abaxial veins, base rounded, truncate or cordate, apex rounded to acute. Inflorescences diffuse terminal panicles, to 33 cm long, with 2 to 4 (to 7) subsessile flowers in terminal clusters; axes glabrous; branches subtended by deltate to lanceolate bracts, 0.8-3.0 mm long, hyaline, caducous. Calyx 1.5-2 mm long, limb 0.8-0.9 mm long, puberulent, red to purple; stamens generally 2. Anthocarps clavate, 2.7-3.8 mm long, 5-ribbed, sticky-glandular.

GENERAL DISTRIBUTION: Pantropical.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Saba!, Montserrat!, Dominica!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAME: Batata di porko.

NOTES: *Boerhavia diffusa* and *B. coccinea* are distinct entities, but in many floras their names are interchanged. Fosberg (l.c.) lectotypifies *Boerhavia diffusa* with LINN 9.3; this specimen is, however, post-1753 and may not be used as lectotype (C. E. Jarvis, pers. comm.). Fosberg also claims (l.c. and pers. comm.) that *B. diffusa* is an Old World species distinct from the New World *B. paniculata*, but does not cite any characters supporting this claim. We have examined both Old World and New World specimens at A/GH and find no basis for distinguishing the two.

***Boerhavia erecta* L., Sp. Pl. 1: 3. 1753.**

Type: Not designated.

Annual weed to 8 dm tall, spreading branched from stout root crown; stems puberulent below inflorescence. Leaves with petioles 0.6-2.7 cm long, puberulent; blades rhombic-ovate or lanceolate, 1.3-6 x 0.7-4 cm, sparsely to densely puberulent on both surfaces, base truncate to rounded, apex acute, apiculate. Inflorescences terminal or axillary much-branched panicles, 15-47 cm long, with 3 to 8 flowers in terminal umbel-like clusters; axes glabrous, branches subtended by lance-linear bracts 0.8-2.7 mm long. Pedicels 1.1-4.6 mm long; calyx 1.8-2.8 mm long; limb 1-1.9 mm long, glabrous, pink or white; stamens 1 or 2. Anthocarp cuneiform, 2.9-3.6 mm long, 5-ribbed, glabrous.

GENERAL DISTRIBUTION: Southern United States, Mexico, Central America, South America, West Indies, West Africa, Malaya.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Antigua!, Saba, St. Eustatius, St. Kitts, Montserrat!, Guadeloupe!, Dominica, Martinique, St. Lucia, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Yerba marga, mata porko, hogweed, patagon.

Boerhavia scandens L., Sp. Pl. 1: 3. 1753.

FIGURE 58.

Lectotype: Pluk., Alm. 349, t. 226, f. 7. Typotype, hb. Sloane 98: 51, top left.

Syn.: *Commicarpus scandens* (L.) Standley, Contr. U.S. Natl. Herb. 12: 373. 1909.

Sprawling weed to 2 m tall, often scrambling over shrubs; stems pale green, glabrous, fragile; bark brown, corky, fissured. Leaves with petioles 0.3-2.7 cm long, sparsely puberulent, puberulence extending across node; blades deltate, lanceolate, ovate, elliptic or suborbicular, 1.5-4.9 x 0.8-3.9 cm, glabrous abaxially, sparsely puberulent adaxially, base cordate to rounded, apex acute to rounded (rarely emarginate). Inflorescences terminal and axillary umbels, 3-7 cm long, with 5 to 12 flowers, sparsely branched or unbranched, axes glabrous; bracts lanceolate, 2-3 mm long, green, ciliolate. Pedicels 1.5-7.2 mm long; calyx 4.7-8.0 mm long, limb 2.3-3.6 mm long, glabrous, white to greenish yellow; stamens 2 (rarely 3). Anthocarps clavate to fusiform, 9.4-12 mm long, shallowly 10-grooved, with irregularly placed knoblike glands near distal end.

GENERAL DISTRIBUTION: Texas to Arizona, Mexico, Central America, South America, West Indies.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, St. Eustatius, St. Kitts, Montserrat.

COMMON NAMES: Yerba di pipa, yerba de cangreu, kwareel.

NOTES: The two most recent workers on *Boerhavia*, Fosberg (1978) and Bogle (1971) have chosen to return this species to its original place in the genus *Boerhavia*, rather than segregate it in *Commicarpus*. Cladistically, there is no reason to choose one placement over the other, since *Boerhavia* s.s., *Boerhavia* s.l. and *Commicarpus* are all likely to prove strictly monophyletic. We therefore include them in the same genus for convenience. This is analogous to the relationship of *Pisonia* and *Guapira*.

BOUGAINVILLEA A. L. Juss.

Bougainvillea Comm. ex A. L. Juss., Gen. Pl. 91. 1789, nom. cons. ("*Buginvillea*")

Scandent shrubs or vines; stems glabrous or pubescent, often armed with spines. Leaves alternate. Inflorescences axillary, 3-flowered, each flower perfect, borne on persistent colored bract, pedicel confluent with midrib of bract; calyx tubular, 5-lobed, lobes valvate, tube subterete or angled; stamens 5-10; ovary

stipitate; style filiform or subclavate, straight or curved, included. Anthocarps coriaceous, rarely formed on West Indian plants.

TYPE SPECIES: *Bougainvillea spectabilis* Willd., type cons.

A South America genus of 14 to 18 species and numerous cultivated forms. For more information, see W. T. Gillis, *Baileya* **20**: 34-41. 1976.

KEY TO THE SPECIES

- Calyx with trichomes short, crisply curved upward, lower part strongly angled *B. glabra*
Calyx with dense spreading trichomes > 1mm long, lower part nerved but not prominently angled *B. spectabilis*

NOTES: This key follows Herklots (*Flowering tropical climbers*, p. 133. 1976) who in turn follows several publications of Holttum. Like everyone else who has published on this genus, neither Herklots nor Holttum ever saw the plants in the wild. These taxonomic distinctions have been maintained by all recent workers in the West Indies, albeit with qualifying statements like "many hybrids exist." We feel that the variability of the characters distinguishing the species should be evaluated carefully in the wild (assuming pure wild forms can be located); the cultivated bougainvilleas may in fact represent a single variable species.

Holttum (Gard. Chron. ser. 3, **103**: 164-165. 1938) reports that the first artificial hybrids of *Bougainvillea* were apparently produced on St. Vincent in 1918 by Mr. W. N. Sands.

Bougainvillea glabra Choisy in DC., Prodr. **13**(2): 437. 1849.

Lectotype: Brazil, Rio de Janeiro, *Gaudichaud* 423 (G-DC; IDC 800. 2215: III. 2, photo!).
Syn.: *Bougainvillea spectabilis* Willd. var. *glabra* (Choisy) Hook., Bot. Mag. **80**: 4811. 1854.

High climbing vine; stems sparsely puberulent, yellowish or reddish-brown; spines recurved, 2-15 mm long. Leaves with petioles 0.6-2.3 cm long, sparsely puberulent; blades elliptic to ovate, 2.9-9.1 x 1.8-5.3 cm, puberulent abaxially, glabrous to puberulent adaxially, base cuneate to rounded, apex acute to abruptly acuminate. Bracts elliptic to ovate, 2.4-5.2 x 1.7-3.9 cm, sparse puberulent, orange to pink, magenta or purple, rarely white, apex acute, base cordate; calyx prominently 5-angled, 1.6-2.4 cm long, crisp-puberulent, green; lobes broadly ovate to deltate. Anthocarps turbinate, 7-13 mm long.

GENERAL DISTRIBUTION: Native to South America; widely cultivated throughout tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Montserrat!, Martinique, St. Lucia!, St. Vincent!, Barbados.

NOTES: Description based on specimens from throughout Antilles.

Standley (Contr. U. S. Natl. Herb. **12**: 394. 1911) agrees with Hooker (1854) in

suggesting that *Bougainvillea glabra* may not deserve specific rank, but should be reduced to a variety under *B. spectabilis*.

Bougainvillea spectabilis Willd., Sp. Pl. 2: 348. 1799.

FIGURE 60.

Type: Brazil, *Humboldt s.n.* (hb. Willd. #7332; IDC 7440. 504: II. 5, photo!).

High climbing vine; stems, leaves and petioles hirsute throughout; branches flexuous, grayish or reddish-brown; spines stout, recurved, to 4 cm long. Leaves with petioles 0.4-1.9 cm long; blades elliptic to ovate or broadly ovate, 2.2-10 x 1.6-6.5 cm, densely pubescent abaxially, more sparsely so adaxially, base cuneate to rounded, apex rounded, acute or acuminate. Bracts elliptic to ovate, 2.8-5 x 1.7-3.1 cm, hirsute abaxially, sparsely puberulent adaxially, orange, pink or lilac, apex rounded to acute, base rounded to cordate; calyx not strongly angled, 2.1-2.6 cm long, hirsute, green, lobes ovate-triangular, yellowish. Anthocarps oblong-ellipsoid, 11-14 mm long.

GENERAL DISTRIBUTION: Native to South America; cultivated throughout tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Antigua!, Guadeloupe!.

NOTES: Heimerl annotated the type specimen in the Willdenow herbarium as *Bougainvillea peruviana* Kunth.

Many specimens determined as belonging to this species are in fact referable to *Bougainvillea glabra*, which is the more commonly cultivated species.



FIGURE 60 (left). *Bougainvillea spectabilis*, x 0.47. FIGURE 61 (right). *Mirabilis jalapa*, x 0.47.

MIRABILIS L.

Mirabilis L., Sp. Pl. 1: 177. 1753.

Erect perennial herbs, taprooted. Leaves opposite, fleshy. Inflorescence a terminal cyme. Flowers perfect, each subtended by sepeloid 5-lobed involucre; calyx petaloid, tubular, elongate, constricted above the ovary, limb spreading; stamens 5 or 6, unequal. Anthocarps ribbed.

TYPE SPECIES: *Mirabilis jalapa* L.

A New World genus of 45 to 60 species, with greatest diversity in the southwestern United States and Mexico.

Mirabilis jalapa L., Sp. Pl. 1: 177. 1753.

FIGURE 61.

Type: Hort. Cliff. 53 (BM, n.v.).

Weedy herb to 1 m tall; stems much-branched, glabrous, puberulent in lines, or puberulent throughout. Leaves with petioles 0.5-4.5 cm long, glabrous to puberulent; blades deltate to lanceolate, 3.2-12.5 x 1.8-5.7 cm, glabrous, base truncate to cordate, margin densely ciliate with multicellular hairs, apex acute to acuminate, sometimes apiculate; raphides prominent abaxially. Cymes with 2 to 5 flowers; bracts 5, elliptic to lanceolate, 7-8 mm long, becoming 10-14 mm in fruit, connate 1/2 length, green, sepeloid, margins densely ciliate with multicellular hairs; raphides prominent. Calyx of 5 fused sepals, trumpet-shaped, 4.5-6.3 cm long at anthesis, sparsely puberulent, red to purple, pink, white or yellow; raphides sparse but prominent. Anthocarps ovoid, 9-13 mm long, with slight constriction above base, glabrous to puberulent, 5-ribbed, muricate, black.

GENERAL DISTRIBUTION: Pantropical.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba, St. Eustatius, Montserrat!, Guadeloupe, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados.

COMMON NAMES: Vier uur bloem, four o'clock, belle de nuit.

NOTE: Style length is highly variable in members of this species (H. G. Baker, *Evolution* 18: 507-512. 1964).

PISONIA L.

Pisonia L., Sp. Pl. 2: 1026. 1753.

Dioecious shrubs or small trees, scandent or upright, armed or unarmed; bark smooth; young parts pubescent, soon glabrous. Leaves opposite or subopposite. Inflorescences axillary or terminal, paniculate to corymbiform cymes. Flowers yellow-green to whitish, fragrant, bracteate; staminate perianth broadly to nar-

rowly turbinate, stamens 6 to 8, exserted; pistillate perianth tubular, stigmas much divided. Anthocarp ellipsoid to clavate, dry or fleshy.

TYPE SPECIES: *Pisonia aculeata* L.

A pantropical genus of 35 to 75 species, much in need of monographic study to clarify both generic and specific limits. For more information, see J. F. Stemmerik, *Blumea* **12**: 275-284. 1964.

Britton (Bull. Torrey Bot. Club **31**: 611-615. 1904) proposed that the genus *Torrubia* Vell. be segregated from *Pisonia*, on the basis of its red, fleshy anthocarps. This suggestion was taken up by Standley in all of his subsequent work on the family. Some years later, Woodson & Schery (Ann. Missouri Bot. Gard. **48**: 61. 1961) pointed out the existence of the earlier name, *Guapira* Aublet, for *Torrubia*. Little (Phytologia **17**: 367-368. Nov. 1968) published some of the necessary combinations; others were published by Lundell (Wrightia **4**: 79-96. Dec. 1968).

Except for the anthocarp character, there is little distinction between the genera. The Lesser Antillean species of *Pisonia* s.s. (*P. aculeata* and *P. subcordata*) generally have straight tawny or brownish-golden trichomes covering the buds, whereas the species assignable to *Guapira* have curved or tangled rufous trichomes. Staminate or sterile specimens may, however, be hard to identify. Stemmerik (1964) records substantial variation in anthocarp characters in Old World *Pisonia*; although he does not discuss *Guapira*, his reduction of other segregate genera to subgenera could also be considered a rationale for reducing the rank of *Guapira*. L. Y. Th. Westra, on the other hand, currently revising neotropical *Pisonia* and *Guapira*, prefers to keep the two genera separate on the basis of the anthocarp character (pers. comm.). Because *Guapira* and *Pisonia* s.s. are likely to prove to be sister taxa, either segregating *Guapira* or retaining the species in *Pisonia* will accurately reflect their evolutionary relationship. Taxonomic rank thus becomes a matter of convenience, and we have chosen to recognize only a single genus. This situation is parallel to that of *Boerhavia* and *Commicarpus*, in which we have also included all species in a single genus.

KEY TO THE SPECIES

1. Scandent shrubs armed with stout recurved spines; 5 rows of prominent glands extending length of anthocarp *P. aculeata*
1. Upright shrubs, unarmed; anthocarps drupaceous or, if glandular, then glands only near apex.
 2. Leaves subsessile, petioles < 2 mm long; Martinique *P. suborbiculata*
 2. Leaves petiolate; widespread.
 3. Leaf apices mostly abruptly acute *P. fragrans*
 3. Leaf apices rounded.
 4. Leaves 1-7.5 cm wide; petioles > 1 mm thick; anthocarp glandular
..... *P. subcordata*
 4. Leaves 0.7-3.2 cm wide; petioles < 1 mm thick; anthocarp drupaceous
..... *P. discolor*

Pisonia aculeata L., Sp. Pl. 2: 1026. 1753.

FIGURE 62.

Type: Not designated.

Scrambling shrub or vine with arching branches; bark smooth, reddish; young stems, buds, leaves, inflorescence axes, flowers and fruits covered with dense tawny pubescence, glabrescent with age; stems generally with stout recurved spines 0.3-1.1 cm long. Leaves with petioles 0.5-1.8 cm long; blades ovate, elliptic, obovate or suborbicular, 1.8-7.8 x 1.3-5.5 cm, somewhat leathery, deciduous, sparsely puberulent adaxially, more densely so abaxially or wholly glabrous, base cuneate to rounded, apex acute (rarely rounded). Inflorescences axillary; staminate 1.5-3.5 cm long, pistillate 3.6-10 cm long. Flowers subtended by oblong bracts 1-1.4 mm long; staminate perianth ca. 2 mm long; pistillate perianth 1.6-2.5 mm long; style 1.2 mm long. Anthocarps long-ellipsoid, 11-15 x 2.3-3.5 mm, dry, puberulent, green, with 5 rows of glands, each row uniseriate or biseriate.

GENERAL DISTRIBUTION: New World tropics and subtropics, southern Asia, Pacific islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts, Antigua!, Saba, St. Eustatius, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Blackthorn, croc-chien.

NOTES: In the protologue of *Pisonia helleri*, Standley reported it from Martinique, Guadeloupe and Antigua, but we have seen no specimens that could clearly be assigned to the species. It is poorly distinguished from *P. aculeata* by its thicker anthocarps and its double rows of glands; the latter character is variable within *P. aculeata* and probably has little taxonomic value. Adams (1972) lists *P. helleri* as a synonym of *P. aculeata*.

Pisonia discolor Sprengel, Syst. Veg. 2: 168. 1825.

Type: Jamaica, *Bertero s.n.* (holotype, B, presumed destroyed).

Syn.: *Torrubia discolor* (Sprengel) Britton, Bull. Torrey Bot. Club 31: 613. 1904.

Guapira discolor (Sprengel) Little, Phytologia 17: 368. 1968.

Unarmed shrub or small tree, to 8 m tall; bark smooth, gray-white to reddish; buds, youngest stems densely red-puberulent, elsewhere glabrous. Leaves with petioles 0.4-2.4 cm long, < 1 mm thick; blades oblong, elliptic, ovate or obovate, 1.4-8.6 x 0.7-3.2 cm, glabrous, base cuneate to rounded, apex rounded. Inflorescences axillary, 1.8-4.8 cm long, glabrous. Flowers glabrous to puberulent, subtended by lanceolate bracts, 0.5-1 mm long; staminate perianth 3-3.5 mm long; stamens 6 or 7; pistillate perianth 1.8-2.3 mm long. Anthocarps ellipsoid, 3.7-8 x 1.5-4 mm, fleshy, red.

GENERAL DISTRIBUTION: West Indies.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!.

NOTE: Description based on Greater Antillean and Bahaman specimens.



FIGURE 62. *Pisonia aculeata*: a, habit, x 0.4; b, staminate flower, x 6; c, pistillate flowers, x 6; d, single anthocarp, x 2; e, infructescence, x 0.4.

Pisonia fragrans Dum.-Cours., Bot. Cult. ed. 2, **7**: 114. 1814. (ibid., **2**: 502. 1811, nomen. nudum.)

Type: Described from cultivated specimen at Paris.

Syn.: *Pisonia obtusata* Sw., Fl. Ind. Occid. **3**: 1960. 1806, not Jacq., 1798. (Type: St. Barts, Swartz s.n. (BM, not found).)

Pisonia obtusata Heimerl, Bot. Jahrb. Syst. **21**: 624. 1896, p.p., not Jacq., 1798.

Pisonia fragrans Dum.-Cours. var. *oblanceolata* Heimerl in Urban, Symb. Antill. **7**: 213. 1912. (Syntypes: Grenada, *Broadway 1777* (GH!, NY!); Tobago, *Broadway 3544* (NY!).)

Pisonia coriifolia Heimerl in Urban, Symb. Antill. **7**: 213. 1912. (Type: Grenada, *Broadway 1425* (holotype, B, presumed destroyed).)

Torrubia dussii Standley, Contr. U. S. Natl. Herb. **18**: 99. 1916. (Type: Guadeloupe, *Duss 2170* (holotype, US; isotype, NY!).)

Torrubia fragrans (Dum.-Cours.) Standley, Contr. U. S. Natl. Herb. **18**: 100. 1916. *Torrubia coriifolia* (Heimerl) Standley, Contr. U. S. Natl. Herb. **18**: 100. 1916.

Pisonia dussii (Standley) Stehlé, Ann. École Natl. Agric. Montpellier **29**: 11. 1954; Bull. Soc. Bot. France **108**: 330. 1961.

Guapira dussii (Standley) Lundell, Wrightia **4**: 80. 1968.

Guapira coriifolia (Heimerl) Lundell, Wrightia **4**: 80. 1968.

Guapira fragrans (Dum.-Cours.) Little, Phytologia **17**: 368. 1968.

Unarmed tree or shrub to 8 (15) m tall; bark smooth, twigs gray-white; terminal buds densely rufous-pubescent, soon glabrescent. Leaves with petioles 0.2-1.6 cm long; blades suborbicular, ovate, elliptic or obovate, 2.4-14.5 x 1.7-6.9 cm, glabrous, base cuneate to rounded, apex rounded, obtuse, acute or acuminate. Inflorescences terminal, 3.8-10.3 cm long, glabrous throughout; peduncles 1.4-5.9 cm long; bracts lanceolate, 0.4-1.5 mm long. Flowers sessile; staminate perianth 2.9-4.9 mm long, puberulent; pistillate perianth 2-4.8 mm long, contracted below 5 lobes. Anthocarps ellipsoid, 8-13 mm long, fleshy, dark blue; pedicels becoming crimson.

GENERAL DISTRIBUTION: Greater Antilles, Curaçao, Bonaire, Trinidad, Tobago, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts, Barbuda!, Antigua!, Saba, St. Eustatius!, St. Kitts!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Black loblolly, beef-wood, mapou blanc, mapou rouge.

Pisonia subcordata Sw., Prodr. 60. 1788.

Type: Antigua, *Ponthieu s.n.* (holotype, BM!).

Syn.: *Pisonia subovata* Poiret in Lam., Encycl. **5**: 347. 1804. (Type: St. Kitts, *anon.*, p, not seen).

Pisonia subcordata Sw. var. *typica* forma *swartziana* Heimerl, Bot. Jahrb. Syst. **21**: 629. 1896. (Syntypes: Antigua, *Wulfschlaegel 463*; Guadeloupe, *Bertero s.n.*, *Duchassaing s.n.*; La Désirade, *Duss 2172b*; Martinique, *Plée 958*; etc. (B, presumed destroyed).)

Unarmed tree to 10 m tall; bark smooth, gray; young stems, buds, petioles,

leaves and inflorescences more or less densely tawny to brownish-gold pubescent, glabrescent with age. Leaves with petioles 0.5-2.7 cm long; blades ovate, elliptic or suborbicular, 1.4-12 x 1-7.5 cm, glabrous, base rounded to subcordate, apex obtuse to rounded. Inflorescences axillary, staminate 3.1-4.9 cm long, pistillate 3.4-9.4 cm; bracts deltate to lance-linear, ca. 1 mm long. Perianth puberulent, staminate 2.5-3.8 mm long, pistillate 2.2-2.5 mm. Anthocarps cylindrical, 8-11 x 1.4-1.8 mm, dry, sparsely puberulent, green, with 5 rows of sticky glands extending 1.5-4.5 mm from tip.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts, Barbuda!, Antigua!, Saba!, St. Eustatius, Montserrat!, Guadeloupe!, Marie Galante!, Martinique.

COMMON NAMES: Loblolly, mapou gris.

NOTE: Fournet (1978) claims that this species does not occur on Martinique; we have seen no specimens from that island.

Pisonia suborbiculata Hemsley ex Duss, Fl. Phan. Antill. Franç. 62. 1897.

Type: Martinique, Rivière-Pilote, Duss 1467 (holotype, P, not seen; isotype, GH!, NY!).

Syn.: *Pisonia obtusata* Heimerl, Bot. Jahrb. Syst. 21: 624. 1896, p.p., not Jacq., 1798.

Torrubia suborbiculata (Hemsley) Britton, Bull. Torrey Bot. Club 31: 613. 1904.

Unarmed shrub to 2.5 m tall; branches stout; apical buds and youngest twigs rufous-pubescent, soon glabrescent. Leaves subsessile, with petioles 1-2 mm long, thickened, dark; blades orbicular to ovate, 1.5-3.7 x 1.3-2.4 cm, glabrous, glossy, apex rounded, base rounded. Inflorescences terminal, 3-4.9 cm long, axes puberulent to glabrate. Flowers glabrous; staminate perianth 3.5-4 mm long, pistillate 2.6-2.9 mm long. Anthocarps ellipsoid to lageniform, 8-10 x 2-3 mm, fleshy, red, glaucous, striate.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Dominica, Martinique!, St. Lucia!.

COMMON NAME: Petit mapou.

DUBIOUS SPECIES

Pisonia inermis Jacq., Select. Stirp. Amer. Hist. 275. 1763.

This species cannot be identified with any certainty from the description, and we have been unable to locate a type specimen. Jacquin did not illustrate it. Standley (1916) placed it in the synonymy of *P. fragrans*, although *P. inermis* is older and should take precedence.

PHYTOLACCACEAE

by Elizabeth A. Kellogg

PHYTOLACCACEAE R. Br. *in* Tuckey, Narr. Exped. Zaire 454. 1818, nom. cons. ('Phytolaceae').

Herbs, shrubs or vines. Leaves alternate, simple, entire, exstipulate or sometimes with small stipules; petioles, when present, deeply sulcate adaxially. Inflorescences elongate, racemose or spikelike, terminal or axillary; each pedicel immediately subtended by a bract; bracteoles present or not. Flowers perfect (in Lesser Antillean members), regular; tepals 4 or 5, free or slightly fused, white, green or rosy; stamens 4 to 20, free or occasionally filaments fused, sometimes inserted on hypogynous disk, in 1 or 2 whorls; filaments equilong or of varying lengths; carpels 1 to 16, free or connate. Fruits fleshy, baccate or drupaceous.

TYPE GENUS: *Phytolacca* L.

A family of about 17 genera and 120 species. For more information, see H. Walter *in* A. Engler, *Pflanzenr.* IV (83): 1-154. 1909; J. Nowicke, *Ann. Missouri Bot. Gard.* 55: 294-364. 1968; and G. Rogers, *J. Arnold Arbor.* 66: 1-37. 1985. G. K. Brown & G. S. Varadarajan (*Syst. Bot.* 10: 49-63. 1985) provide a rationale for dividing our genera of the Phytolaccaceae s.l. into Phytolaccaceae s.s. (including only *Phytolacca* in this treatment) and Petiveriaceae.

CULTIVATED SPECIES

Moquin (*in* DC., *Prodr.* 13(2): 14. 1849) reports a specimen of *Ledenbergia sequierioides* Klotzsch collected on Martinique (*Plée s.n.*). This was almost certainly from a cultivated plant at the St. Pierre Botanic Gardens. There are no other reports of this otherwise Venezuelan species in the West Indies.

KEY TO THE GENERA

1. Inflorescences spikelike; pedicels < 3 mm long.
 2. Tepals 4, spreading, > 2.5 mm long; fruit oblong, indurate, with 4 to 6 retrorse hooks; strong onion odor *Petiveria*
 2. Tepals 5, spreading but not at right angles, < 1.5 mm long; fruit thin-walled, spiny *Microtea*
1. Inflorescences racemose; pedicels > 3 mm long.
 3. Tepals 5; carpels 10 to 16; fruits multi-seeded berries; leaves with obvious white raphide bundles *Phytolacca*
 3. Tepals 4; carpel 1; fruits single-seeded drupes; leaves without bundles of raphides.
 4. Tepals erect in fruit; stamens 4; stigma capitate *Rivina*
 4. Tepals reflexed in fruit; stamens 8 to 12; stigma penicellate *Trichostigma*

MICROTEA Sw.

Microtea Sw., *Prodr.* 4, 53. 1788.

Annual herbs. Leaves sessile or petiolate. Inflorescences spicate or racemose;

bracteoles 0 or 2. Tepals 5; stamens 5 to 9, alternitepalous or irregularly inserted; ovary 1-celled, stigmas 2. Fruit a thin-walled achene, smooth, wrinkled or muricate; seed 1, lenticular; testa shiny black.

TYPE SPECIES: *Microtea debilis* Sw.

A genus of about 10 species, native to tropical America.

***Microtea debilis* Sw.**, Prodr. 4, 53. 1788.

FIGURE 63.

Type: St. Christopher, *Swartz s.n.* (BM, not found).

Weedy taprooted herb, prostrate to ascending, to 3 dm tall; stems ribbed, glabrous. Leaves with petioles to 3 cm long; blades rhombic-ovate to oblanceolate, to 6 cm long, often forming basal rosette, glabrous, apex acute to acuminate, base cuneate, broadly decurrent on petiole. Racemes not over 5.5 cm long; bracts membranous, 0.6-1 mm long; bracteoles lacking; pedicels 0.8-1.1 mm long. Tepals ovate, 0.7-1.1 mm long, obtuse, white; stamens 5, alternitepalous; stigmas spreading. Fruits wrinkled and spiny, 1-1.5 mm long, much overtopping shriveled persistent perianth.



FIGURE 63. *Microtea debilis*, x 33. Inset: mature fruit, x 2.

GENERAL DISTRIBUTION: West Indies, Guatemala south through Central America to Peru and Brazil.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts, Antigua!, Saba, St. Eustatius, St. Kitts, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Herbe-au-long-case, demoiselle.

PETIVERIA L.

Petiveria L., Sp. Pl. 1: 342. 1753.

Tall fruticose herbs, smelling strongly of garlic or onions. Leaves minutely stipulate. Racemes elongate; bracteoles 2. Tepals 4, partially united below, lobes persistent, spreading in flower, enlarging and erect in fruit; stamens 4, 6, or 8 on hypogynous disk; filaments of various lengths; ovary 1-celled, oblong, tomentose; stigma 1, sessile, penicellate, decurrent along margin of ovary. Fruit an oblong achene, indurate, with 4 to 6 retrorse hooks from apex; seed 1, linear, testa adherent to pericarp.

TYPE SPECIES: *Petiveria alliacea* L.

A monotypic genus of tropical and subtropical areas of the New World.

Petiveria alliacea L., Sp. Pl. 1: 342. 1753.

FIGURE 64.

Type: Jamaica, not designated.

Syn.: *Petiveria octandra* L., Sp. Pl. ed. 2, 1: 486. 1762. (Type: LINN 272.2.)

Weed to 2 m tall; stems angled or ribbed, puberulent. Leaves with petioles sparsely puberulent, ca. 1 cm long; blades elliptic to obovate, to 15 cm long, apex acuminate, apiculate, base cuneate to obtuse. Racemes spikelike, to 4.5 dm long, rachis puberulent, flowers widely spaced, sessile or shortly pedicellate, mostly not overlapping; bracts deltate to lanceolate, 1-3 mm long, puberulent, green; bracteoles 0.7-1 mm long, scarious. Tepals oblong, 2.6-4.3 mm long, obtuse, white, broadly spreading; ovary cylindrical, enlarging to ca. 8 mm long in fruit.

GENERAL DISTRIBUTION: Widespread from Florida to Texas, West Indies, Central America, and South America south to Argentina.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe, La Désirade!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Dandail, douvant-nègre, conga root, garlic root, marie pourie, fey douvan, mawi pouwi.

NOTES: Used for fatigue on Dominica. May cause dermatitis in some people.



FIGURE 64. *Petiveria alliacea*, x 0.25.

PHYTOLACCA L.

Phytolacca L., Sp. Pl. 1: 441. 1753.

Shrubs or herbs. Leaves sessile or petiolate. Inflorescences spikes or racemes; bracteoles 2, on pedicel. Tepals 5; stamens 8 to 20, number varying widely within a plant, in 1 or 2 whorls; carpels 5 to 16, free or united; styles appressed or spreading. Fruit a berry or collection of drupelets; seeds reniform, shiny, black.

LECTOTYPE SPECIES: *Phytolacca americana* L.

A genus of about 25 temperate and tropical species.

Phytolacca rivinoides Kunth, Sp. Nov. Hort. Berol. 15. 1849. FIGURE 65.

Type: Caracas, *Moritz s.n.* (B, presumed destroyed).

Syn.: *Phytolacca icosandra* Griseb., Fl. Brit. W. Indian Is. 58. 1859, not L., 1759.

Sprawling weedy shrub or herb, to 2 m high; stems ribbed, glabrous. Leaves with petioles to 6 cm long; blades ovate to elliptic or oblong, to 21 cm long, sprinkled throughout with calcium oxalate crystals, apex acuminate, base acute to obtuse. Racemes to 3.5 dm long, much longer than leaves, glabrous, flowers widely spaced; bracts lance-linear, 1.5-3 mm long, hyaline, subtending pedicel; bracteoles similar but smaller, 0.4-1.1 mm long, inserted on pedicel; pedicels slender, 5-15 mm long. Tepals ovate, 1.2-2.8 mm long, white to pink, membranous, becoming reflexed, caducous in fruit; stamens 10 to 20, not obviously in 2 whorls; carpels 10 to 16, styles slender, appressed. Fruit a red-purple or black berry, 4-8 mm in diameter; seeds 9 to 12.

GENERAL DISTRIBUTION: Mexico, south to Bolivia and Brazil, West Indies.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados.

COMMON NAMES: Raisin d'Amérique, épinard doux, épinard de Cayenne, lang bèf, agouman.

NOTES: Fournet (1978) reports *Phytolacca icosandra* L., a species native to the Greater Antilles and Bahamas, as cultivated and occasionally subsponaneous on Guadeloupe and Martinique. It is easily distinguished from *P. rivinoides* by its shorter pedicels (usually < 4 mm long) and puberulent rachis. We have not seen any specimens from the Lesser Antilles.

RIVINA L.

Rivina L., Sp. Pl. 1: 121. 1753.

Erect or sprawling fruticose herbs. Leaves petiolate. Inflorescence a raceme. Tepals 4, persistent and erect in fruit; stamens 4, alternitepalous; ovary 1-celled; style 1; stigma capitate. Fruit a globose red drupe; seed 1, lenticular; testa pubescent.

TYPE SPECIES: *Rivina humilis* L.

A monotypic genus of tropical and warm temperate America; introduced



FIGURE 65. *Phytolacca rivinoides*, x 0.33.

elsewhere. For a full synonymy, see K. Raeder, Ann. Missouri Bot. Gard. **48**: 76. 1961.

Rivina humilis L., Sp. Pl. **1**: 121. 1753.

FIGURE 67.

Lectotype: Hb. Cliff. 35. (BM).

Syn.: *Rivina laevis* L., Mant. Pl. 41. 1767. (Type: America, LINN 163.2.)

Rivina humilis var. *canescens* L., Sp. Pl. **1**: 122. 1753. (Lectotype: Commelin, Horti Med. Amstelod. **1**: 127. t. 66.)

Rivina laevis var. *pubescens* Griseb., Fl. Brit. W. Indian Is. 59. 1859. (Syntypes: Trinidad, *Schach*, *Crueger* (K).)

Herbaceous or fruticose weed, to 1 m tall, often branched; stems glabrous to pubescent, ribbed. Leaves with petioles to 6 cm long, generally with stout trichomes, these continuing up proximal portion of midrib; blades deltate, lanceolate or ovate, to 11 cm long, base truncate to cuneate, apex acuminate and apiculate. Racemes to 8 cm long, glabrous to pubescent; bracts membranous, 0.6-1 mm long; bracteoles minute, scalelike, < 0.3 mm long, immediately beneath calyx; pedicels 2.4-3.9 mm long. Tepals obovate, 2.2-3.1 mm long, obtuse, white or pink; ovary orbicular. Fruits 2.1-3.4 mm long, orange, red or purple.

GENERAL DISTRIBUTION: Southern United States, Central America, South America to Argentina, West Indies.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Herbe blanche, liane blanche, blood berry, cat's blood, pepper bush, rouge plant.

TRICHOSTIGMA A. Rich.

Trichostigma A. Rich. in Sagra, Hist. Fis. Cuba, Bot. **10**: 306. 1845.

Erect or trailing shrubs. Leaves alternate to subopposite, with minute stipules, petiolate. Inflorescence a raceme; bracts caducous; bracteoles 2, persistent, minute. Tepals 4; stamens 8 to 16, in 2 irregular whorls; ovary 1-celled, style absent, stigma penicellate. Fruit a red-purple to black drupe; seed 1, lenticular; testa red-brown.

TYPE SPECIES: *Trichostigma octandrum* (L.) H. Walter.

Four species of tropical regions of the New World.

Trichostigma octandrum (L.) H. Walter, Pflanzenr. IV (**83**): 109. 1909.

FIGURE 66.

Basionym: *Rivina octandra* L., Cent. Pl. II: 9. 1756.

Type: America meridionali, LINN 163.3.

Syn.: *Rivina humilis* var. *scandens* L., Sp. Pl. **1**: 122. 1753. (Type: Plumier.)

Rivina scandens (L.) Miller, Gard. Dict. ed. 8, *Rivina* no. 2, 1768.

Woody vine of forests or coastal thickets, to 7.5 m tall; bark gray-purple;

plants glabrous. Leaves with petioles 8-25 mm long; blades elliptic to lanceolate, to 15 cm long, base cuneate to obtuse, apex acute to acuminate. Racemes lax, often terminal on short shoots, to 13 cm long, commonly flowering on leafless stem; bracts lance-linear, 1.1-1.7 mm long, sometimes displaced upward on pedicel; bracteoles 2, < 0.5 mm, scalelike, immediately beneath perianth; pedicels 6-7 mm long. Tepals obovate, 3-4.8 mm long, green to white, becoming red in fruit, reflexed during and after anthesis, persistent; stamens free; anthers basally sagittate.

GENERAL DISTRIBUTION: Southern Florida, West Indies, Mexico south through Central America and South America to Argentina.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Murette, liane à barriques, liane à terre, bois à terre, orin marron.

NOTE: Some glandular pubescent forms of this species appear in the Greater Antilles, but we have not seen any from our area.



FIGURE 66 (left). *Trichostigma octandrum*, x 0.20. FIGURE 67 (right). *Rivina humilis*, x 0.45. Inset: mature fruit, x 2.

AIZOACEAE

AIZOACEAE F. Rudolphi, Syst. Orb. Veg. 53. 1830.

Succulent annuals or perennials, mostly prostrate and spreading with dichotomous branching. Stipules none or scarious. Leaves opposite or whorled, occasionally in basal rosettes, glabrous. Flowers axillary, solitary or clustered or in pedunculate cymes, perfect; calyx 4- or 5-lobed or parted, fleshy or scarious; petals wanting; stamens few to many; ovary superior, 1- to several-celled, styles free, ovules 1 or many in each locule. Fruit a capsule with loculicidal or circumscissile dehiscence; seeds many or few, usually curved; testa smooth or rugose.

TYPE GENUS: *Aizoon* L.

A family of about 130 genera and some 1200 species. For more information see, P. Wilson, in N. Amer. Fl. 21(4): 267-277. 1932.

KEY TO THE GENERA

1. Leaves in basal rosette or whorled; capsules dehiscent by valves *Mollugo*
1. Leaves opposite; capsules circumscissile.
 2. Stipules present; ovary 1- or 2-celled.
 3. Leaves 1-6 mm long; stamens 1 to 3; calyx lobes without dorsal processes; styles 2; ovules numerous *Cypselea*
 3. Leaves 2-6 cm long; stamens 5 to 10; calyx lobes with fleshy processes; style 1; ovules few *Trianthema*
 2. Stipules caducous or none; ovary 3- to 5-celled *Sesuvium*

CULTIVATED SPECIES

Fournet (1978) reports *Tetragonia expansa* Murray (= *Tetragonia tetragonioides* (Pallas) Kuntze) as being under cultivation in the French West Indian Islands.

CYPSELEA Turpin

Cypselea Turpin, Ann. Mus. Natl. Hist. Nat. 7: 219. 1806.

Prostrate herbs with slender branches. Stipules scarious, laciniate. Leaves opposite, unequal in pairs. Calyx lobes 5; petals none; stamens 1 to 5; ovary 1-celled, styles 2, ovules numerous. Capsules circumscissile at base; seeds many, minute; testa smooth.

TYPE SPECIES: *Cypselea humifusa* Turpin.

A monotypic genus of the West Indies and adjacent Florida and Venezuela.

Cypselea humifusa Turpin, Ann. Mus. Natl. Hist. Nat. 7: 219. 1806. FIGURE 68.

Type: Santo Domingo, Turpin s.n.

Much-branched herb forming mats to 20 cm in diameter. Leaves with petioles

1-2 mm long, slender; blades elliptic, 1.5-6 x 0.8-3 mm, entire, glabrous, base acute or rounded, apex obtuse or rounded. Flowers axillary, on short pedicels; calyx lobes ovate, 1-1.5 mm long, obtuse or acute. Capsules subglobose, 1.5 mm in diameter; seeds 0.2-0.3 mm long, brown.

GENERAL DISTRIBUTION: Southern United States, Greater Antilles, Virgin Islands, Margarita.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe.

NOTE: Reported by Velez (1957) and Fournet (1978) but no specimens have been seen.

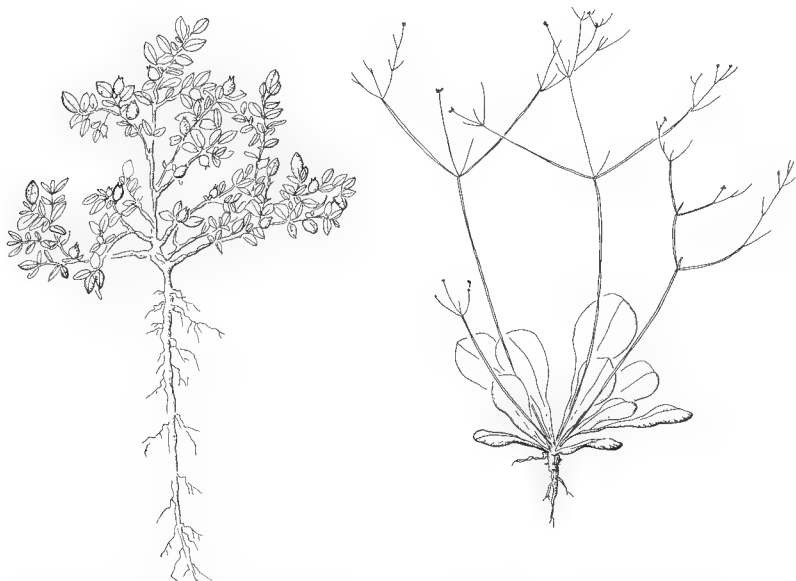


FIGURE 68 (left). *Cypselea humifusa*: habit, x 1. FIGURE 69 (right). *Mollugo nudicaulis*, x 0.5.

MOLLUGO L.

Mollugo L., Sp. Pl. 1: 89. 1753.

Annual herbs; branches prostrate and spreading. Stipules caducous. Basal leaves forming rosette, stem leaves opposite or whorled. Inflorescences axillary, flowers cymose or solitary, pedicellate. Calyx 5-parted, distinct, imbricate; petals wanting; stamens 3 to 10, filaments slightly united at base; ovary 3- to 5-locular,

ovules numerous. Capsules loculicidal, thin or membranous; seeds small; testa granular or sculptured.

TYPE SPECIES: *Mollugo verticillata* L.

A tropical and subtropical genus of 20 species.

KEY TO THE SPECIES

- Leaves spatulate in basal rosette; inflorescences longer than leaves; flowers cymose *M. nudicaulis*
Leaves linear, whorled at base and on stems; flowers on axillary pedicels usually shorter than leaves *M. verticillata*

Mollugo nudicaulis Lam., Encycl. 4: 234. 1796.

FIGURE 69.

Type: Ceylon, Burman, Thes. Zeylan., t. 8, f. 2.

Syn.: *Pharnaceum spathulatum* Sw., Fl. Ind. Occid. 1: 568. 1797. (Type: Jamaica, Sloane.)

Annual or perennial herb with taproot; scapes erect, glandular, 7-25 cm tall. Leaves forming basal rosette; blades oblanceolate to obovate 4-6 x 1.5 cm, glabrous, base indistinguishably narrowed to petiole, apex rounded. Flowers cymose, on long pedicels; calyx lobes oblong, 2 mm long, greenish outside, white inside; stamens 4 or 5. Capsules ellipsoid, 2-2.5 mm long; seeds reniform, 0.5 mm long, reddish brown or black; testa reticulate pitted.

GENERAL DISTRIBUTION: Native of the Old World, weedy in Greater Antilles and South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Guadeloupe, St. Lucia!

Mollugo verticillata L., Sp. Pl. 1: 89. 1753.

Type: Virginia, not selected.

Annual herb, dichotomously branched and prostrate spreading, or ascending. Leaves in whorls of 3 to 6 or more; blades obovate to spatulate-lanceolate or linear, 7-35 x 0.8-11 mm, glabrous, base tapering, apex obtuse, rounded or acute. Flowers axillary, on pedicels 3-15 mm long; sepals (calyx lobes) oblong, 1.8-2.5 mm long, green with white margin; stamens usually 3. Capsules ovoid or ellipsoid, 2.5-3 mm long, 20- to 30-seeded; seeds reniform, 0.6 mm long, brown, ridged.

GENERAL DISTRIBUTION: Essentially worldwide as a weed.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts!, St. Eustatius!, St. Kitts, St. Vincent.

SESUVIUM L.

Sesuvium L., Syst. Nat. ed. 10, 2: 1052, 1058. 1759.

Succulent perennial prostrate herbs. Leaves opposite, estipulate; petioles

sheathing, often connate at base. Flowers axillary, sessile or pedicellate; calyx lobes 5, fleshy, usually with hornlike process on back; petals wanting; stamens 5 to many, filaments filiform, glabrous; ovary 3- to 5-celled, ovules numerous; styles 3 to 5. Capsules membranous, 3- to 5-celled, circumscissile; seeds stalked.

TYPE SPECIES: *Portulaca portulacastrum* L. (= *Sesuvium portulacastrum* (L.) L.)

A halophytic genus with 8 or 10 species of tropical and subtropical regions.

KEY TO THE SPECIES

1. Stamens numerous; leaves very fleshy; flowers pedicellate.
 2. Leaves linear, 2-6 cm long *S. portulacastrum*
 2. Leaves oblong, 1-2 cm long *S. microphyllum*
1. Stamens 5; leaves spatulate, not conspicuously succulent; flowers subsessile *S. maritimum*

***Sesuvium maritimum* (Walter) Britton, Sterns & Pogg., Prelim. Cat. 20. 1888.**

Basionym: *Pharnaceum maritimum* Walter, Fl. Carolina 117. 1788.

Type: Not designated.

Prostrate annual herb, stems to 30 cm long. Leaf blades obovate or spatulate, 8-25 mm long, entire, apex obtuse. Flowers solitary, subsessile; calyx lobes broadly ovate, 4 mm long, green, scarious margined; stamens 5. Capsules ovoid, 4-4.5 mm long; seeds reniform or curved, 0.8 mm in diameter, dark brown, smooth, shiny.

GENERAL DISTRIBUTION: Southern United States, Bahamas, Cuba, Jamaica, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: St. Barts.

***Sesuvium microphyllum* Willd., Enum. Hort. Berol. 521. 1809.**

Type: Havana, Cuba, no collector or specimen indicated.

Succulent prostrate herb, stems to 50 cm. Leaf blades spatulate, 1-2 cm long, succulent. Flowers solitary, axillary, pedicels to 7 mm long; calyx lobes obovate to lanceolate, 6 mm long, scarious-margined, apex acute with sharp process; stamens many. Capsules ovoid-conical, 4-5 mm long; seeds many, round, 0.7 mm in diameter, black, smooth, lustrous.

GENERAL DISTRIBUTION: Cuba.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!.

***Sesuvium portulacastrum* (L.) L., Syst. Nat. ed. 10, 2: 1058. 1759. FIGURE 70.**

Basionym: *Portulaca portulacastrum* L., Sp. Pl. 1: 446. 1753.

Type: Curaçao, Hermann, Parad. Bat. t. 212. 1698.

Succulent perennial with trailing stems to 2 m long. Leaf blades oblanceolate to linear-oblong, 1.5-6 x 0.3-1.5 cm, often 3-6 mm thick, base clasping, apex acute. Flowers solitary, pedicels to 2 cm long; calyx lobes lanceolate, 5-5.7 x 2-4.5 mm, thick, with scarious margins, pink-purple within, green or red outside, with green fleshy abaxial process; stamens numerous, filaments 5 mm long; ovary ovoid-globose, 3-3.5 mm long, styles usually distinct to base. Capsules conical, 9-11 mm high, 5-6 mm in diameter; seeds to 1 mm in diameter, black, smooth and shiny.

GENERAL DISTRIBUTION: Southeastern United States, Mexico, Central America, Greater Antilles, South America and the Old World.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, St. Kitts!, Redonda!, Montserrat!, Guadeloupe!, Les

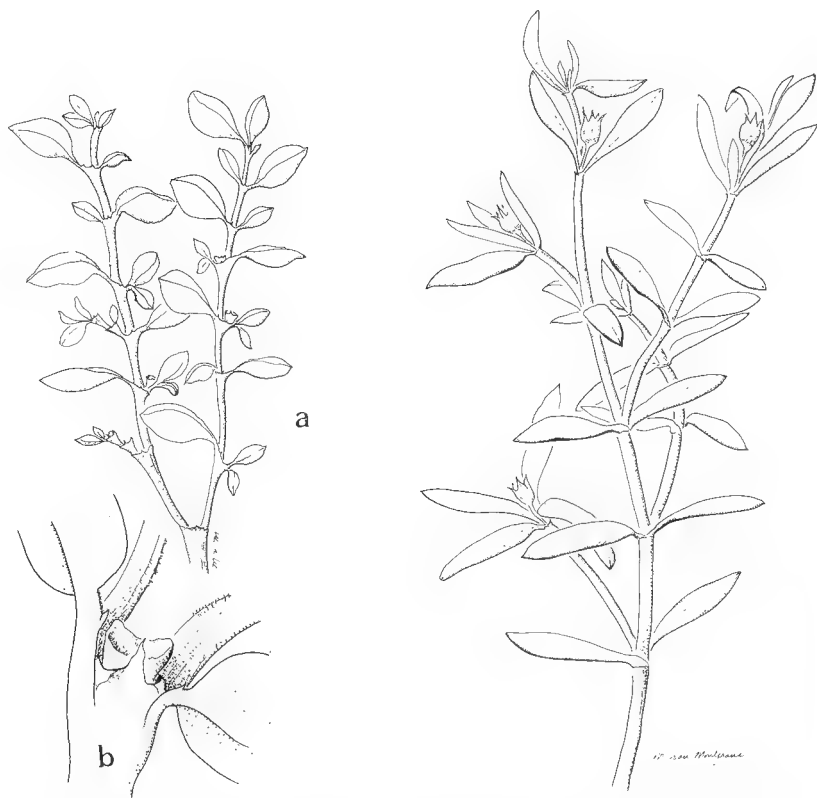


FIGURE 70 (left). *Sesuvium portulacastrum*, x 0.5. FIGURE 71 (right). *Trianthema portulacastrum*: a, habit x 0.5; b, node and fruit, x 2.

Saintes!, Dominica!, Martinique!, St. Lucia!, the Grenadines!.

COMMON NAMES: Sea purslane, pourpier-bord-de-mer.

TRIANTHEMA L.

***Trianthema* L., Sp. Pl. 1: 223. 1753.**

Succulent prostrate herbs. Stipules triangular. Leaves opposite, entire, those of a pair unequal, with sheathing bases. Flowers axillary, sessile or short-stalked, solitary or in cymes or clusters. Calyx lobes 5, petals none; stamens 5 to 10 or more; ovary 1- or 2-celled, ovules few, styles 1 or 2. Capsules membranous or coriaceous, short fleshy sometimes lobed process at top on 1 side, circumscissile; seeds reniform.

TYPE SPECIES: *Trianthema portulacastrum* L.

Nineteen of the 20 species of *Trianthema* are Old World species, with only one occurring in the tropics and subtropics of the Americas. For more information, see C. Jeffrey, Kew Bull. **14**: 235-236. 1960; **16**: 137-138. 1962.

***Trianthema portulacastrum* L., Sp. Pl. 1: 223. 1753.**

FIGURE 71.

Type: Hermann, Parad. Bat. t. 213. 1698.

Syn.: *Trianthema monogynum* L., Mant. Pl. 69. 1767, nom. illegit.

Succulent perennial herb; stems prostrate, to 1 m long, long-setose or hirsute in lines. Stipules triangular, 3 mm long, acuminate. Leaves with petioles 3-20 mm long; blades obovate, elliptic to suborbicular, 1-4 x 0.5-3.5 cm, base usually narrowed, apex rounded, emarginate or acute and apiculate. Flowers axillary, sessile or concealed in petiole base; sepals lanceolate 4-5 mm long, pink or purple within, green outside. Capsules 4-5 mm long, crested; seeds black, to 2 mm in diameter, with radiating ridges.

GENERAL DISTRIBUTION: Southeastern United States, Mexico and Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Montserrat!, Guadeloupe!, Martinique!, the Grenadines!, Grenada!, Barbados!.

COMMON NAME: Pourpier courant.

PORTULACACEAE

PORTULACACEAE A. L. Juss., Gen. Pl. 312. 1789.

Succulent herbs, rarely woody, glabrous or pilose at nodes. Stipules scarious, lacerate or present as hairs. Leaves opposite or alternate. Flowers solitary, cymose, racemose or paniculate, perfect, regular or nearly so; sepals 2, persistent

or caducous; petals 4 or 5 or many, fugacious; stamens as many as petals or more; ovary superior or half inferior, styles 2 or more, ovules several to many, on free central or basal placenta. Fruit a loculicidal or circumscissile capsule; seeds compressed or lenticular, reniform or cochleate; testa often ornamented, sometimes strophiolate; embryo curved.

TYPE GENUS: *Portulaca* L.

A family with 19 genera and 580 species, distributed worldwide.

KEY TO THE GENERA

Flowers solitary or clustered; capsule circumscissile *Portulaca*
 Inflorescence racemose or paniculate; capsule loculicidal *Talinum*

PORTULACA L.

Portulaca L., Sp. Pl. 1: 445. 1753.

Ascending or prostrate spreading annual or perennial succulent herbs. Stipules scarious or present as clusters of hairs. Leaves opposite or alternate, flat or terete, often forming whorls around flowers. Flowers solitary or clustered; sepals 2; petals usually 5, occasionally many, brightly colored, fugacious; styles 3 to 9. Capsules 1-celled, membranous, circumscissile, many-seeded; seeds reniform or cochleate; testa smooth or tuberculate.

TYPE SPECIES: *Portulaca oleracea* L.

A genus of 200 species in tropical, subtropical or temperate areas, mostly in dry areas or as weeds or ornamentals. For more information, see C. D. Legrand, *Comun. Bot. Mus. Hist. Nat. Montevideo* 24(2): 1-10. 1952; and *Anales Mus. Nac. Montevideo* 2, 7: 1-147. 1962.

KEY TO THE SPECIES

1. Stems weak, filiform; creeping plants rooting at nodes; leaves small, opposite; petals yellow *P. quadrifida*
1. Stems stout often fleshy, erect or spreading, not rooting at nodes; leaves alternate.
 2. Leaves obovate or spatulate, flat, nodes glabrous or hairs few; corolla yellow, seeds black *P. oleracea*
 2. Leaves subterete or slightly flattened, linear to linear-oblong; nodal hair clusters usually conspicuous.
 3. Petals yellow; leaves caducous at least in drying.
 4. Perennial with succulent tap root or tuberous roots; petals 6 mm long; capsules hemispherical, circumscissile above middle, lid saucer-shaped; seeds brown *P. rubricaulis*
 4. Annual with weak fibrous roots; petals 3 mm long; capsules ovoid, circumscissile at middle or below, lid cup-shaped; seeds black *P. halimoides*
 3. Petals red or purple; leaves persistent.
 5. Petals 1.5-2.5 cm long; flowers often double *P. grandiflora*
 5. Petals 3-5 mm long; flowers single.

6. Axillary hairs conspicuous; seeds black, tuberculate *P. pilosa*
 6. Axillary hairs short and inconspicuous; seeds gray, without spiny
 tubercles *P. teretifolia*

***Portulaca grandiflora* Hooker, Bot. Mag. t. 2885. 1829.**

Type: Argentina, Bot. Mag. t. 2885.

Ascending or spreading annual, with axillary tufts of hairs. Leaves alternate; blades terete, 8-25 x 2-2.5 mm, apex acute. Flowers in terminal clusters of 1 to 3, surrounded by long white or brownish hairs and involucre of 6 to 9 leaves; sepals 7-10 x 6-8 mm, apex acute; petals obovate, 1.5-2.5 x 1.5-2.5 cm broad, red, pink, salmon, yellow or white, commonly numerous. Capsules broadly ellipsoid or subglobose, 4-5 mm high, 3-4.5 mm in diameter, circumscissile slightly below middle; seeds gray, spiny tuberculate.

GENERAL DISTRIBUTION: South America, but cultivated widely and naturalized in temperate and tropical areas.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, St. Eustatius!, St. Lucia!.

***Portulaca halimoides* L., Sp. Pl. ed. 2, 1: 639. 1762.**

✓ Lectotype: Sloane, Voy. Jamaica t. 129, f. 3. 1707.

Syn.: *Portulaca martinicensis* Urban, Symb. Antill. 5: 342, fig. k. 1907. (Type: Martinique, Duss 1377b, 1378 (not seen); Hahn 1400 (K!).)

Erect or diffuse much-branched annual, 5-15 cm tall, with conspicuous axillary tufts of hairs. Leaves alternate; blades oblong-linear, subcylindric, 5-10 x 1.4-2.5 mm, apex obtuse. Flowers in terminal clusters of 3 to 6 surrounded by long white hairs and involucre of 4 to 8 leaves; sepals 2-2.3 mm long, apex acute; petals ovate to ovate-elliptic, 3 x 1.2-1.3 mm, white with yellow base or yellowish. Capsules globose, 1.5-2 mm high, circumscissile below middle; seeds black, surface granulate.

GENERAL DISTRIBUTION: Greater Antilles, Mexico and Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, Redonda!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.

COMMON NAMES: Petite quinine, quinine amère.

***Portulaca oleracea* L., Sp. Pl. 1: 445. 1753.**

Type: Not designated.

Syn.: *Portulaca parvifolia* Haw., Syn. Pl. Succ. 122. 1812. (Type: Cultivated plant native to Jamaica.)

Portulaca oleracea L. var. *parviflora* (Haw.) Griseb., Fl. Brit. W. Indian Is. 57. 1859, sphalm.

Portulaca oleracea L. var. *parvifolia* (Haw.) Griseb., Fl. Brit. W. Indian Is. 707. 1864, spelling correction.

Fleshy, usually prostrate and spreading annual; stems to 30 cm long, glabrous or with few axillary hairs. Leaves alternate; blades obovate-spatulate, 6-30 x 2-13 mm, apex rounded or truncate. Flowers solitary or clustered, lacking conspicuous hairs; sepals ovate, 2.8-4.5 x 2.8-3.8 mm, keeled; petals 3-4.6 x 1.8-3 mm, yellow; stamens 6 to 10. Capsules broadly ovoid, 5-9 mm high, circumscissile at or about middle; seeds black, surface granulate.

GENERAL DISTRIBUTION: Nearly cosmopolitan as a weed.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, Montserrat!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Purslane, pusley, pourpier, koupyé.

NOTES: The variety *granulato-stellulata* is the most common in the Lesser Antilles. However, the prominence of the tubercles varies greatly in one capsule.

Portulaca pilosa L., Sp. Pl. 1: 445. 1753.

FIGURE 73.

- Type: Tropical America, LINN 625.2.

Annual; stems ascending or prostrate, with conspicuous axillary tufts of hairs. Leaves alternate; blades oblong-lanceolate, somewhat flattened, 5-16 x 2-4 mm. Flowers single or clustered, surrounded by long brownish hairs and involucre of 6 to 10 leaves; sepals triangular-ovate 2-3 mm; petals obovate to broadly obovate, 3-6 x 2.5-4.5 mm, purple-pink. Capsules subglobose, 3-4 mm in diameter, circumscissile about middle; seeds black, tuberculate.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, Mexico, Central America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Quinine-pays, petite quinine, pourpier amère, chouvalyé wouj.

Portulaca quadrifida L., Mant. Pl. 73. 1767.

Type: Egypt, not designated.

Much-branched prostrate annual; stems creeping and rooting at nodes, forming mats, with axillary tufts of hairs. Leaves opposite; blades elliptic to ovate, flat, 3-6 x 1-3 mm, apex obtuse or acute. Flowers 1 or 2 (rarely 3), surrounded by long white hairs and involucre of 4 or 5 leaves; sepals 2 mm long; petals elliptic or oval, 3-4 mm long, yellow. Capsule ovoid, to 6 mm, circumscissile above base; seeds grayish-black, spiny tuberculate.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, the Grenadines!, Grenada!.

COMMON NAMES: Pourpier, pourpier double.

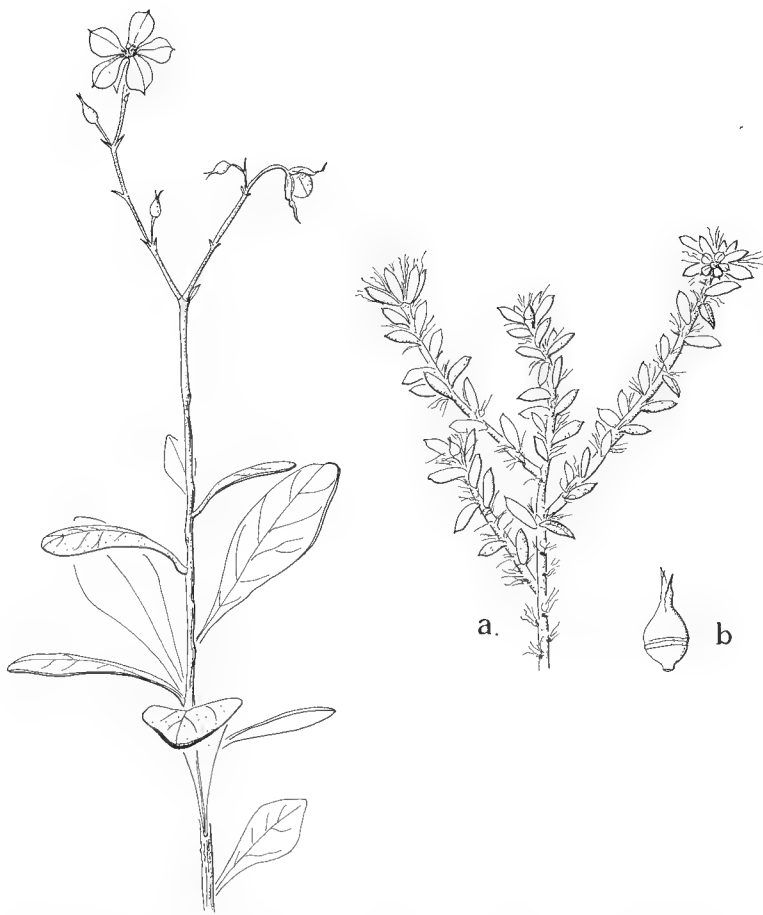


FIGURE 72 (left). *Talinum fruticosum*, x 0.5. FIGURE 73 (right). *Portulaca pilosa*: a, habit, x 1; b, capsule, x 2.5.

Portulaca rubricaulis Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 73. 1823.

Type: Venezuela, not designated.

Perennial ascending or spreading herb with fleshy tap root or tuberous roots; tufts of axillary hairs inconspicuous. Leaves alternate; blades linear to oblong-linear, terete or somewhat flattened, 5-20 x 1-3.5 mm. Flowers 1 or few in clusters, surrounded by brownish or white hairs and involucre of 5 to 8 leaves; sepals 3-4.5 mm long; petals obovate, 3-4.2 x 2-5 mm, yellow. Capsules globose, 3-3.5 mm high, 2.5-3 mm in diameter, circumscissile above middle; seeds brown, surface granulate or rounded tuberculate.

GENERAL DISTRIBUTION: Mexico, Greater Antilles, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, La Désirade!, Les Saintes!.

Portulaca teretifolia Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 72. 1823.

Type: Venezuela, *Humboldt 1030*.

Syn.: *Portulaca poliosperma* Urban, Symb. Antill. 4: 232. 1905. (Type: Puerto Rico, *Sintenis 6834*.)

Portulaca teretifolia Kunth var. *cubensis* (Urban) Legrand, Comun. Bot. Mus. Hist. Nat. Montevideo 24(2): 6. 1952.

Annual, ascending, much-branched herb; axillary hairs inconspicuous. Leaves alternate; blades linear, flattened, 4.5-15 x 1-2 mm. Flowers few in terminal clusters, surrounded by short white hairs and involucre of 6 to 9 leaves; sepals 3.5-4 mm long; petals obovate, 4-4.5 mm long, purple. Capsules oval to subglobose, 3.5-5 mm high, 3-3.5 mm in diameter, circumscissile about middle; seeds gray, without spiny tubercles.

GENERAL DISTRIBUTION: Central America, Cuba, Puerto Rico, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Guadeloupe, Dominica!, Martinique.

TALINUM Adans.

Talinum Adans., Fam. Pl. 2: 245, 609. 1763, nom. cons.

Herbaceous or slightly woody plants, often with fleshy tuberous roots. Stipules wanting. Leaves alternate, fleshy; blades flat, entire. Inflorescences terminal racemes or panicles. Sepals 2, caducous; petals 5, fugacious; stamens few or many; ovary superior, styles 3, ovules numerous, basal. Capsules 1-celled, 3-valved; seeds numerous, flattened, round to reniform; testa smooth.

LECTOTYPE SPECIES: *Portulaca fruticosa* L. (= *Talinum fruticosum* (L.) A. L. Juss.)

A genus of about 50 species distributed throughout the world in warm regions. Dandy (Taxon **18**: 465. 1969) proposed the conservation of *Talinum* A. L. Juss. with the type species *T. paniculatum* (Jacq.) Gaertner, pointing out that *Portulaca fruticosa* L. had a confused interpretation. The Committee on Spermatophyta did not find the proposal acceptable (Taxon **20**: 385. 1971). Subsequently McNeill (Taxon **26**: 147. 1977, **27**: 545. 1978) proposed *Talinum triangulare* (Jacq.) Willd. to be the conserved type species and it is so listed in the current edition of the Code. Recently Wijnands & Westphal-Stevens have proposed that typification again be changed, accepting as the basionym *Portulaca fruticosa* L. = *Talinum fruticosum* (L.) A. L. Juss. *Portulaca triangularis* Jacq. and *Portulaca racemosa* L. are homotypic synonyms with all names based on Plumier, Pl. Amer. t. 150, f. 2. 1757.

KEY TO THE SPECIES

Inflorescences paniculate; petals 4-5 mm long *T. paniculatum*
 Inflorescences racemose or subcorymbiform; petals 6-9 mm long *T. fruticosum*

***Talinum fruticosum* (L.) A. L. Juss., Gen. Pl. 312. 1789.**

FIGURE 72.

• Basionym: *Portulaca fruticosa* L., Syst. Nat. ed. 10, **2**: 1045. 1759.

Lectotype: Plum., Pl. Amer. t. 150, f. 2. 1757.

• Syn.: *Portulaca racemosa* L., Sp. Pl. ed. 2, **1**: 640. 1762. (Type: Plum., Pl. Amer. t. 150, f. 2.)

Portulaca triangulare Jacq., Enum. Syst. Pl. 22. 1760; Select. Stirp. Amer. Hist. 148. 1763. (Type: Plum., Pl. Amer. t. 150, f. 2.)

Talinum triangulare (Jacq.) Willd., Sp. Pl. **2**(2): 862. 1800.

Stems erect, to 60 cm tall, stout and fleshy. Leaves oblanceolate to obovate, 2.8 x 1-3.2 cm, base cuneate, apex rounded or acute. Racemes few- or many-flowered, to 7 cm long; pedicels angled. Sepals ovate, 5 mm long, persistent; petals broadly elliptic, 6-9 x 6 mm, pink, yellow or orange. Capsules globose, 4.5-6 mm in diameter; seeds dark brown, shiny.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, St. Eustatius!, St. Kitts!, Nevis!, Redonda!, Montserrat!, Guadeloupe!, La Désirade!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

COMMON NAME: Pourpier grand bois.

NOTES: Plants in one population on Montserrat show some individuals with pink flowers and others with yellow, and a few with the petal color orange, seemingly an intermediate hybrid. Other islands seem to possess plants of but one color, either yellow or red-pink.

***Talinum paniculatum* (Jacq.) Gaertner, Fruct. Sem. Pl. **2**: 219. 1791.**

Basionym: *Portulaca paniculata* Jacq., Enum. Syst. Pl. 22. 1760; Select. Stirp. Amer. Hist. 148. 1763.

Type: "Martinicae & Domingo," *Jacquin s.n.*

Syn.: *Portulaca patens* L., Mant. Pl. 242. 1771, *nom. illegit.*

Talinum patens (L.) Willd., Sp. Pl. 2(2): 863. 1800.

Herbs with tuberous roots, 25 cm tall or with inflorescence to 75 cm, sometimes quite woody at base. Leaves elliptic or obovate, 2.7-10 x 1.5-4.8 cm, base tapering or cuneate, apex obtuse or sometimes acute. Panicles 7-25 cm long, branches cymose. Sepals oval to orbicular, 3-4 mm long, caducous; petals oval to orbicular, 3.5-4.8 mm long, red, pink or yellowish. Capsules subglobose, 3-4.5 mm in diameter; seeds black, minutely striolate or tuberculate, shiny.

GENERAL DISTRIBUTION: United States, Mexico, Central America, Greater Antilles, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAME: Grand pourpier.

BASELLACEAE

by Elizabeth A. Kellogg

BASELLACEAE Moq., Chenop. Monogr. Enum. X. 1840.

Succulent vines. Leaves alternate, thick, fleshy, mucilaginous, petiolate or not. Inflorescences axillary or terminal spikes, racemes, or panicles. Flowers perfect, sessile or pedicellate; bracteoles in 2 decussate pairs (upper pair sometimes also called sepals); tepals 5; stamens 5, opposite petals; ovary 1, 1-celled, superior; styles 1 to 3; stigmas 1 to 3. Fruit a utricle, sometimes fleshy, enclosed in accrescent perianth; seed 1; embryo annular or spiral.

TYPE GENUS: *Basella* L.

A family of 4 genera and ca. 20 species. This treatment was prepared with the help of C. Sperling, Harvard University, who is currently revising the family.

KEY TO THE GENERA

Flowers sessile; fruits fleshy, enclosed in succulent perianth *Basella*
Flowers pedicellate; fruits utricles *Anredera*

ANREDERA A. L. Juss.

Anredera A. L. Juss., Gen. Pl. 84. 1789.

Twining vines. Inflorescences racemose, axillary or terminal, lax and drooping, if branched below then each raceme subtended by a bract. Tepals white; filaments flattened, white, hyaline; anthers oblong; styles and stigmas 3. Fruit a utricle.

TYPE SPECIES: *Anredera spicata* J. F. Gmelin.

Fifteen species or fewer, of temperate and tropical parts of the New World; introduced into the Old World.

Anredera leptostachys (Moq.) Steenis, Fl. Malesiana, ser. 1, **5**: 302. 1957. FIGURE 74.

Basionym: *Boussingaultia leptostachys* Moq. in DC., Prodr. **13**(2): 229. 1849.

Syntypes: Mexico, *Adrieux s.n.* (not seen); Porto Rico, *West s.n.* (G-DC!; IDC 800. 2177: III. 7, photo!).

Vine covering shrubs or small trees; glabrous. Leaves with petioles stout, to 1 cm long; blades elliptic, ovate or lanceolate, to 7 (11) cm long, base cuneate, decurrent on petiole, apex acute to acuminate. Racemes to 4 dm long; bracts linear-acuminate, 0.7-1.9 mm long, hyaline, caducous; pedicels 0.7-1.5 mm long; lower pair of bracteoles ovate, 0.4-0.8 mm long, hyaline; upper pair of bracteoles and tepals oblong to ovate, 1.4-2.2 mm long, obtuse or rounded, spreading at anthesis; stamens exceeding tepals at anthesis; stigmas deeply cleft. Utricles obovoid, ribbed, 0.8-1.3 mm long, smooth, pale brown and shining below, darker brown and rugose above; seed 1, usually not developed.

GENERAL DISTRIBUTION: Florida, Texas, West Indies, Central America and northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Guadeloupe!, Martinique!, St. Lucia!, Grenada!, Barbados.

COMMON NAMES: Guérit-tout, glycérine, gerie tow.

NOTES: Plants rarely if ever set seed in the Lesser Antilles. Stoffers (Fl. Neth. Antilles **2**: 207. 1980) reports *Anredera cordifolia* (Ten.) Steenis from Saba. It is distinguished from *A. leptostachys* by its entire, more or less clavate stigmas and nigrescent tepals.

BASELLA L.

Basella L., Sp. Pl. **1**: 272. 1753.

Fleshy glabrous vines. Inflorescences spikes or panicles, borne upright; rachis thick and fleshy. Flowers sessile, nearly always cleistogamous; upper bracteoles tepaloid; tepals 5, fleshy and enlarging in fruit. Fruits maroon to black, fleshy; seed 1.

LECTOTYPE SPECIES: *Basella rubra* L. (= *Basella alba* L.)

About 5 species native to Africa and Asia. For more information, see B. Verdcourt, Fl. Trop. East Africa 1-4. 1968.

Basella alba L., Sp. Pl. **1**: 272. 1753.

FIGURE 75.

Type: *Basella flore albo, foliis et caulibus viridibus* Thran, Hort. Carolruh. 10, n. 100. 1747.

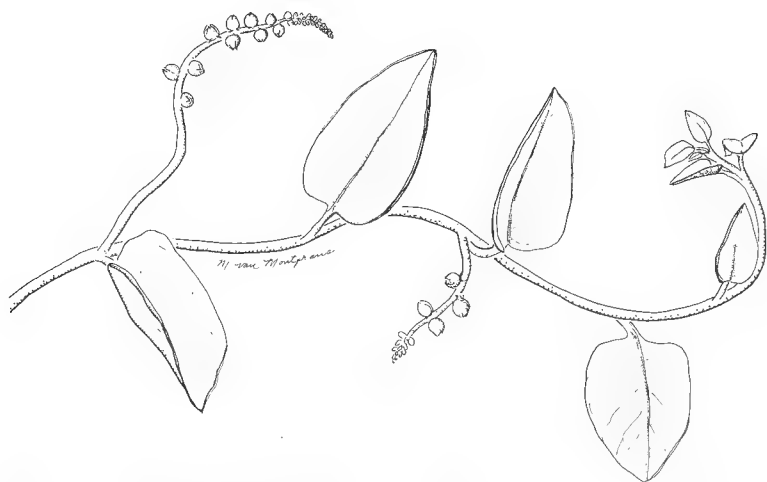
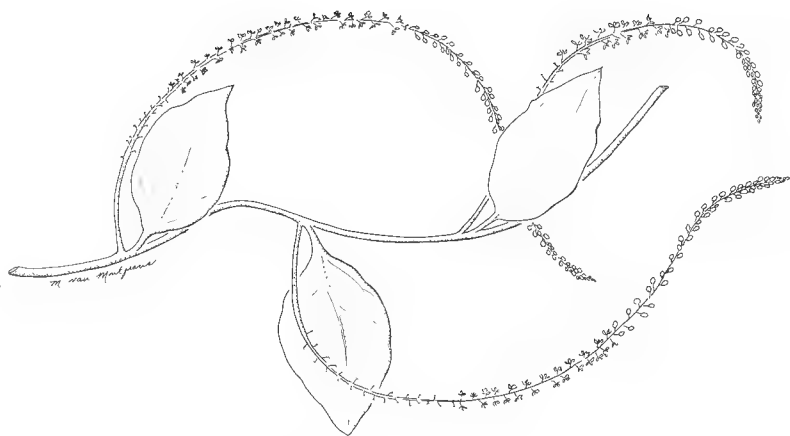


FIGURE 74 (upper). *Anredera leptostachys*, x 0.5. FIGURE 75 (lower). *Basella alba*, x 0.5.

Syn.: *Basella rubra* L., Sp. Pl. 1: 272. 1753. (Lectotype: Drawing of fruiting plant in Hb. Hermann 5, t. 207 (BM).)

Plant cultivated or escaped; stems glabrous, green to red. Leaves with petioles to 2 cm long; blades broadly ovate to elliptic, to 13 cm long, base cuneate to truncate or cordate, somewhat decurrent on robust petiole, margin entire, undulate, apex acute to obtuse or rounded. Inflorescences to 2 dm long; bracts broadly ovate to lanceolate, 1.1-2.3 mm long, acuminate, hyaline, 1-nerved. Tepals oblong to ovate, 2.1-3.2 mm long, obtuse, imbricate, rose-pink to white. Fruits drying to 4-6 mm in diameter.

GENERAL DISTRIBUTION: Native to the Old World, probably Africa, but now pantropical.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, St. Lucia!, Barbados.

COMMON NAMES: Malabar spinach.

CARYOPHYLLACEAE

CARYOPHYLLACEAE A. L. Juss., Gen. Pl. 299. 1789, nom. cons. ('Caryophylleae').

Annual or perennial herbs. Stipules present and scarious or wanting. Leaves opposite, entire. Flowers perfect or rarely unisexual, solitary or in cymes or umbels; calyx of 4 or 5 sepals, imbricate; petals of same number, often bifid, rarely wanting; stamens 8 or 10, inserted at base of ovary, filaments distinct or connate below; ovary 1-celled, styles 3 to 5, free or united near base; ovules borne on central column, numerous. Fruit a capsule, dehiscent by valves or apical teeth.

TYPE GENUS: *Caryophyllus* Miller, nom. illegit., not L., 1753 = *Dianthus* L.

A cosmopolitan family of 70 genera, although mostly of temperate areas.

KEY TO THE GENERA

Leaves orbicular or reniform; styles united at base *Drymaria*
Leaves ovate; styles free at base *Stellaria*

CULTIVATED SPECIES

Dianthus caryophyllus L. and *Dianthus chinensis* L. are cultivated as garden carnations. *Gypsophila paniculata* L. is also cultivated as baby's breath.

DRYMARIA Roemer & Schultes

Drymaria Willd. ex Roemer & Schultes, Syst. Veg. 5: xxxi, 406. 1819.

Annual or perennial, glabrous or pubescent herbs with spreading prostrate stems. Stipules small, scarious. Leaves opposite or subverticillate. Flowers per-

fect, few in dichasial cymes or solitary or clustered in leaf axils; sepals 5, free; petals 3 to 5, usually bifid, white; stamens 2 to 5, filaments flattened, slightly connate; ovary superior, slightly stipitate; styles 3, more or less united at base; ovules few. Capsules ovoid, dehiscing into 3 entire valves; seeds cochleate, usually tuberculate.

LECTOTYPE SPECIES: *Drymaria arenarioides* Humb. & Bonpl. ex Roemer & Schultes.

A genus of 40 species in the New World with scattered single species in Asia, Africa and Australia. For more information, see J. Duke, Ann. Missouri Bot. Gard. **48**: 173-268. 1961; and M. Mizushima, J. Jap. Bot. **32**: 69-81. 1957.

Drymaria cordata (L.) Willd. ex Roemer & Schultes, Syst. Veg. **5**: 406. 1819.

FIGURE 76.

Basionym: *Holosteum cordata* L., Sp. Pl. **1**: 88. 1753.

Type: Jamaica, uncertain. LINN 109.1 is post 1753.

Branched herb, often rooting at nodes. Stipules lacerate, to 2 mm long. Leaves with petioles 2-15 mm long; blades orbicular to reniform, 5-25 x 5-30 mm, base rounded to cordate, apex rounded or mucronulate. Inflorescences terminal or axillary, few-flowered dichasial cymes; pedicels with band of glandular pubescence. Sepals lanceolate to ovate, to 4 mm long; petals deeply bifid, 2-3 mm long, white; stamens 2 or 3; styles > 1 mm long, bifid or trifid. Capsules 1.5-2.5 mm long, 3-valved; seeds dark reddish brown, tuberculate in lines.

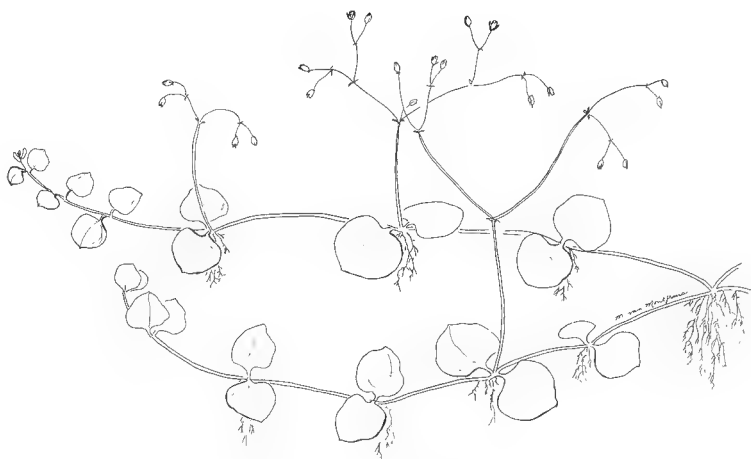


FIGURE 76. *Drymaria cordata*, x 0.5.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Mourron blanc, petit mourron.

STELLARIA L.

Stellaria L., Sp. Pl. 1: 421. 1753.

Herbs. Stipules scarious. Leaves petiolate, entire, often pubescent. Flowers perfect, solitary or cymose, terminal or pseudolateral; sepals 4 or 5; petals 4 or 5, white, deeply bifid; stamens 8 or 10; styles 3, free. Capsules ovoid to globose, 1-locular, opening by twice as many valves or teeth as styles; seeds many.

LECTOTYPE SPECIES: *Stellaria holostea* L.

About 120 species with a worldwide distribution.

Stellaria media (L.) Cirillo, Essent. Pl. Char. Comment. 36. 1784. FIGURE 77.

Basionym: *Alsine media* L., Sp. Pl. 1: 421. 1753.

Lectotype: LINN 388.1.

Weak annual or perennial with trailing stems; pubescence in lines. Leaves sessile or with petioles 1-1.8 cm long, ciliate; blades ovate, 0.8-1.5 x 0.8-1.2 cm, base rounded, margin ciliate, apex acute. Sepals 3-4 mm long, usually pilose; petals shorter than sepals, bifid or wanting; stamens 3 to 10. Capsules ovoid, equalling or exceeding calyx; seeds lenticular, tuberculate.

GENERAL DISTRIBUTION: Cosmopolitan.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

COMMON NAME: Mourron.

NOTES: Most American authors attribute the combination to Cirillo (1784) and this rare publication cannot be checked. Flora Europea and most European authors attribute the combination to Villars, Hist. Pl. Dauphiné 3: 615. 1789.

NYMPHAEACEAE

by George W. Staples

NYMPHAEACEAE R. A. Salisbury, Ann. Bot. (Koenig & Sims) 2: 70. 1805.

Aquatic herbs with fibrous roots, vegetative parts often bearing stellate scleroids. Leaves alternate, floating or emergent at maturity, sometimes submerged in juvenile plants. Petioles terete, length dependent on water depth, often con-

taining air canals. Leaf blade involute in bud, orbicular, ovate or elliptic-ovate, peltate, or with deep basal sinus. Flowers solitary, axillary, floating or emergent, hermaphroditic. Peduncles terete, often with air canals. Sepals 4-6, green outside, often colored within. Petals 6 to many, showy, white or colored, often grading into the stamens. Stamens many, spirally arranged, outermost often with petaloid filaments, extrorse or introrse, anthers often appendaged distally. Carpels few to many, apocarpous or syncarpous, superior to inferior. Ovules numerous, pendulous, anatropous. Fruit a many-seeded berry, or an aggregate fruit formed from the receptacle. Seeds small, operculate and arillate, or larger hard-walled nuts.

TYPE GENUS: *Nymphaea* L.

In the broad concept followed herein, the family contains eight genera and about 80 species of widespread distribution in freshwater habitats. *Nymphaea* is represented by three species in the Lesser Antilles, while *Nelumbo* is known from one species recently collected on Antigua.

KEY TO THE GENERA

- Leaves entire, peltate; flowers pink to whitish; seeds few, large, hard-walled, recessed in pockets in an obconical, flat-topped fruit *Nelumbo*.
 Leaves with deep basal sinus; flowers white; seeds tiny, numerous, arillate, in a subspherical fleshy berry *Nymphaea*.

NELUMBO Adans.

Nelumbo Adans., Fam. Pl. 2: 76, 582. 1763.

Syn.: *Nelumbium* A.L. Juss., Gen. Pl. 68. 1789, orth. var.

Large, aquatic, perennial herbs with slender, proliferative and much thickened storage rhizomes. Leaves floating or emergent, to 2 m above water surface; petiole stout, muricate; blade peltate, entire, strongly ribbed below. Flowers solitary, overtopping the leaves, diurnal, hypogynous; peduncles stout, muricate; tepals 14-26, outermost sepaloid, greenish, tardily caducous, petaloid tepals colored, median the largest, innermost smaller, caducous after flowering; stamens numerous, spirally arranged, anthers extrorse, with terminal appendage; carpels 10-28, uniovulate, embedded in the pithy, obconical, yellowish receptacle. Fruit formed from the enlarged, hardened, blackish receptacle. Seeds hard-walled, large, embedded in surface of fruit, released when the latter decays.

TYPE SPECIES: *Nelumbo nucifera* Gaertner.

A genus of only two species, one native in Asia but widely introduced and established elsewhere as an ornamental, the other in North America. The Hindu and Buddhist religions attach religious symbolism to the Asiatic species; the rhizomes and seeds of both species are of minor economic importance as starch sources. One species has recently been collected from, and is established on, Antigua.



FIGURE 77. *Stellaria media*, x 1.

Nelumbo nucifera Gaertner, Fruct. 1: 73. 1788.

FIGURE 78.

Type: not determined.

Syn.: *Nymphaea nelumbo* L., Sp. Pl. 1: 511. 1753, in part.

Large aquatic herb. Leaves floating or emergent, to 1.5 m above water; petiole stout, muricate, to 2.5 cm diameter; blade peltate, orbicular or ellipsoid in outline, obconic in shape, to 75 cm in diameter, dark green above, lighter below, glabrous, strongly water repellent. Flowers emergent, diurnal, lasting 2-3 days, to 30 cm across, fragrant; peduncle stout, muricate, to 2 cm diameter; sepaloid tepals 4-6, ovate, cucullate, greenish-brown, tardily caducous; petaloid tepals 10-20, oblong-lanceolate to obovate, to 15 x 6 cm, pink (to whitish), caducous; stamens ca. 200, 1.5-4 cm long, yellow, with fleshy terminal appendage; receptacle ca. 2 cm wide and 2-3 cm long, fleshy, yellowish. Fruit obconical, flat-topped, \pm ellipsoidal around the apex, to 10 cm long, blackish, hard. Seeds nutlike, 10-12 x 7-8 mm, hard-walled, loosely seated in pockets in fruit.

GENERAL DISTRIBUTION: Tropical and temperate Asia, from Iran eastward to China and Japan, also northern Australia, Papuasias, and widely introduced and established elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Barbuda, Barbados.



FIGURE 78 (left). *Nelumbo nucifera*, x 0.33. FIGURE 79 (right). *Nymphaea ampla*, x 0.33.

COMMON NAMES: Lotus, Egyptian lotus, sacred lotus.

NOTES: Once collected from a shallow pond near the airport on Antigua, flowering in July; also reported from Barbuda and Barbados, but no collections have been seen to document these records.

The American, yellow-flowered *Nelumbo lutea* (Willd.) Pers. has also been reported from Barbados. Gooding, Loveless and Proctor (Flora Barbados 155. 1965) cited no specimens and indicated the plant was doubtfully indigenous. No specimens have been seen and it seems likely the plants may have been introduced but did not persist.

NYMPHAEA L.

Nymphaea L., Sp. Pl. 1: 510. 1753, nom. cons.

Syn.: *Castalia* Salisb., Ann. Bot. (Koenig & Sims) 2: 71. 1805.

Perennial, aquatic, rhizomatous or tuberiferous herbs. Leaves floating or emergent; petioles long, smooth, sometimes basally alate; blade with basal sinus 1/3 to 1/2 its length, occasionally subpeltate, margins entire to serrate, dentate or incised, flat or upturned; venation radiate, prominent below. Flowers diurnal or nocturnal, floating or emergent, white, often fragrant; peduncles terete, slender, smooth; sepals 4, green outside, whitish within; petals 6 to many, white, transitional to stamens; stamens 30 to many, spirally arranged, connective often with apical appendage, anthers introrse; gynoecium of 9-40 carpels, fused or free at the margins, upper surfaces forming a concave, radiate stigma, sometimes surmounted by "carpellary appendages" (= food bodies or carpellary styles); ovules numerous, pendulous from sides of ovary locules. Fruit a spongy, irregularly dehiscent berry, often enclosed in the persistent perianth. Seeds hard, operculate, enclosed in fleshy arils.

TYPE SPECIES: *Nymphaea alba* L., type cons.

A genus of about 35-40 species in the temperate and tropical freshwaters of the world. Following the taxonomic work of Conard, I recognize three species in the Lesser Antilles, with one having several named taxonomic varieties.

REFERENCES: H. S. Conard, The Waterlilies. A monograph of the genus *Nymphaea*, 1905; J. H. Wiersema, Brittonia 36: 213-222. 1984; Systematic Botany Monographs 16: 1-112. 1987.

KEY TO THE SPECIES

1. Leaf blade irregularly repand, sinuate or dentate; flowers diurnal, carpels free at edges, carpellary appendages short-conical, 1-2 mm, yellow *N. ampla*.
1. Leaf blade entire; flowers nocturnal, carpels fused at edges, carpellary appendages slender-clavate, 5-11 mm, creamy white with red or pinkish tips.
 2. Petiole with a ring of long hairs at insertion of blade, otherwise glabrous; flowers floating; perianth whorls \pm equidistant *N. amazonum*.
 2. Petiole entirely glabrous; flowers erect, to 25 cm above water surface; perianth with a wide gap between second and third whorls *N. rudgeana*.

Nymphaea amazonum C. Mart. & Zucc., Abh. Math-Phys. Cl. Koenigl. Bayer. Akad. Wiss. 1: 363. 1832.

Type: Brazil, Pará, prope urbem Pará, *Martius exsicc.* 3313 (lectotype, M, n.v.).

Rhizome subcylindrical, to 10 cm long and 3 cm diameter. Leaves floating, petioles 3-5(-7) mm in diameter, base shortly alate, glabrous except for an apical ring of simple, 3-6 mm long hairs; blades broadly elliptic to suborbicular, 10-24(-33.2) x 7.4-20.5(-27) cm, margins entire, base subpeltate, sinus edges parallel, tapering into obtuse lobes, dark green above, reddish-purple below, often with brownish blotches; veins prominent below. Flowers floating, nocturnal, opening 2 nights, 8-14 cm in diameter, fragrant, white; peduncle 4-6 mm in diameter, glabrous, faintly striate when dried; tepals ca. equidistant on the floral axis; sepals 4, ovate-attenuate, 4.4-4.9 x 1.8-2.4 cm, margins entire, apex acute, slightly cucullate, light green with reddish cast and irregular fuscous striping outside, creamy whitish inside, glabrous, venation obscure; petals 16-20, ovate-oblong, obtuse to rounded apically, 2.6-4.6 x 1.2-2.0 cm, diminishing in size toward center, creamy white; stamens 100-200, diminishing in size toward center, outer with petaloid filaments and short appendages, inner with simple filaments and lacking appendages; carpels 18-40, fused marginally, carpellary appendages clavate, slightly to strongly recurved, 0.5-1.1 cm long, white with pinkish tips; stigmatic disc shallowly funnelform, bright yellow. Fruit depressed obovoid-subspherical, to 3.2 cm in diameter, enclosed by persistent perianth. Seeds ovoid, ca. 0.9 x 1.3 mm, brownish-red, with scattered long silvery hairs.

GENERAL DISTRIBUTION: Tropical America, from Mexico to southern Brazil, following the eastern coast in South America, and throughout the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante, Martinique!, St. Lucia!.

COMMON NAMES: Follet, nénuphar, chapeau d'eau.

NOTES: A species found in stagnant fresh waters throughout its range. The only recent Lesser Antillean collection was made in the Bois d'Orange River on the island of St. Lucia, flowering and bearing fruits in January.

Nymphaea ampla (Salisb.) DC., Syst. Nat. 2: 54. 1821.

FIGURE 79.

Basionym: *Castalia ampla* Salisb., Ann. Bot. (Koenig & Sims) 2: 73. 1806 [1805].

Type: Jamaica, *Shakespear s.n.*, (BM, n.v. Conard reports this is a mixed collection).

Syn.: *Nymphaea ampla* α *plumieri* Planchon, Ann. Sci. Nat. Bot. 3, 19: 44. 1853

(Syntypes: Martinique, *Plumier s.n.* (P, n.v.), *Plée s.n.* (P, n.v.).)

Nymphaea ampla β *hookeri* Planchon, Ann. Sci. Nat. Bot. 3, 19: 45. 1853 (Syntype: Nevis, *Tobin s.n.* (G-DEL, n.v.).)

Rhizome subcylindrical, at least 7 cm long and 2.5 cm in diameter. Leaves floating or emergent; petioles 3-7 mm in diameter, glabrous; blades broadly elliptic to suborbicular, 10.3-30.5(-34) x 9-25(-31) cm, margins irregularly sinuate to dentate, apex rounded to broadly emarginate, base subpeltate, sinus deep, with sinuous edges, the acute to obtuse lobes approaching or overlapping one another, light green above, dull olive green to reddish below, slightly reddish

flecked on both sides. Flower emergent, to 15 cm above water, diurnal, opening 2-3 days, 9-13 cm across, fragrant, white; peduncle 2-6 mm in diameter, glabrous; sepals 4, narrowly ovate-lanceolate to narrowly oblong, 3.6-8.6 x 1.1-2.4 cm, margins entire or slightly undulate distally, apex acute, green outside streaked with dark lines, whitish within, glabrous, with 9 longitudinal veins; petals 6-20, oblong to narrowly ovate, obtuse to acute, 3.2-8.1 x 1-2.7 cm, white; stamens 30-60(-190), yellow, apical appendages white; carpels (9-)11-17(-23), free at edges, carpellary appendages conical, 1-2 mm, yellow, stigmatic disc yellow. Fruit subglobose, 2.5(-5.3) cm in diameter. Seeds ellipsoidal, ca. 1 mm, numerous, red.

GENERAL DISTRIBUTION: Ranging from southern Texas through Central and South America to southern Brazil, including Peru and Ecuador, and widespread in the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Barbuda, St. Eustatius, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados.

COMMON NAMES: White water lily, grand follet, nénuphar, petit follet, petit nénuphar, chapeau d'eau, leli di awa.

NOTES: Three varieties of this widespread species have been recognized, chiefly based on the size of the plant and the numbers of floral parts. Most Lesser Antillean material is *N. ampla* var. *speciosa* (C. Mart. & Zucc.) Caspary; one collection from Grenada, with smaller flowers and fewer petals and stamens, is referable to var. *pulchella* (DC.) Caspary. The vigorous nominate variety does not occur on these islands. Recently, Wunderlin and Les (Phytologia 45: 82-84. 1980) have documented this species establishment in southern Florida.

Lesser Antillean plants occur in a variety of slow-moving or still freshwater situations, from coastal areas to 1000 feet above sea level. Flowering material has been collected between the months of December and July, and plants are probably reproductive throughout the year depending upon water levels.

Nymphaea rudgeana G. Meyer, Prim. Fl. Esseq. 198. 1818.

Type: British Guiana, Essequibo River, *Rodschied 281* (holotype, GOET, n.v.).

Syn.: *Nymphaea blanda* sensu Planchon (1853), a concept based in part on collections from Martinique, non Meyer (1818).

Rhizome to 3 cm in diameter. Leaves floating; petioles 3-5 mm in diameter, ± alate at base, glabrous; blades orbicular to broadly elliptic, 10.2-13.3 x 8.8-11.0 cm, margins entire, apex obtuse to rounded, sinus deep, with diverging edges, lobes obtuse to rounded, olive green above, reddish below, upper surface punctategillate; venation not prominent below. Flowers emergent, to 25 cm above water, nocturnal, opening 2-3 nights, 7-14 cm across, with a wide gap between the second and third whorls of tepals, fragrant, white; peduncle 3-6 mm in diameter, glabrous; sepals 4, broad ovate, 3.2-4.0 x 1.6-2.8 cm, greenish outside with thin dark streaks, whitish within, obscurely veined; petals 16-20, ovate to ovate-elliptic, greenish-white; stamens ca. 40-80, outermost with petaloid

filaments, creamy-white; carpels 11-24, fused at edges, carpellary appendages clavate, 5-8 mm, creamy white with pinkish tips. Fruit a fleshy berry to 2.6 cm in diameter, enclosed in persistent perianth. Seeds ellipsoidal, ca. 1 mm, grayish.

GENERAL DISTRIBUTION: Widespread in the Greater Antilles, on Trinidad, and the northeastern region of South America to Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Îles les Saintes!, Martinique!.

COMMON NAMES: Follet, nénuphar, chapeau d'eau.

NOTES: The Lesser Antillean plants differ from the other material of the taxon in their entire leaves and broad ovate sepals, but they do not approach any other species as closely as *N. rudgeana*; they are assigned here with some reservations. The recent collection from Îles les Saintes came from a pond in pasture land, with both flowers and fruits present in March.

CERATOPHYLLACEAE

by George W. Staples

CERATOPHYLLACEAE Gray, Nat. Arr. Brit. Pl. 2: 395, 554. 1821.

Submerged aquatic herbs, monoecious, rootless; stems elongate, slender, flexuous. Leaves whorled, 3 to 12 per node, dichotomously dissected into filiform lobes. Flowers unisexual, inconspicuous, apetalous, solitary in axil of leaf, staminate and pistillate flowers usually at separate nodes. Fruit an achene, tipped with persistent rigid style; seed with thin testa, lacking endosperm or perisperm.

TYPE GENUS: *Ceratophyllum* L.

The family consists of a single genus of widespread distribution in suitable habitats. Species concepts have varied with authors and range from accepting two widespread and highly variable species to recognizing more than a dozen species with more localized distributions. Recently Wilmot-Dear (Kew Bull. 40: 243-271. 1985) has examined the variability of *Ceratophyllum* worldwide and concluded that the former species concept, with several infraspecific taxa, is preferable.

CERATOPHYLLUM L.

Ceratophyllum L., Sp. Pl. 2: 992. 1753.

Floating freshwater herbs; stems branching. Leaves sessile, verticillate, rigid enough to hold their shape out of water. Flowers small, subtended by involucre of basally connate, apically bristle-tipped bracts; perianth absent; stamens subsessile, spirally arranged on receptacle, anthers longitudinally dehiscent, extrorse, connective apically prolonged, spinose; ovary superior, unilocular, tapering to style base, placentation parietal, ovule 1, pendulous. Achenes tipped by enlarged persistent style; seed thin walled, embryo linear.

TYPE SPECIES: *Ceratophyllum demersum* L.

A cosmopolitan genus in calm or slow-moving freshwater habitats, sometimes also in brackish situations. Louden (Aquatic Botany 4: 127-142. 1978) recognized three species in the West Indies; Wilmot-Dear (loc. cit.) reduced one of those to subspecific rank. One species has been reported from the Lesser Antilles.

Ceratophyllum demersum L., Sp. Pl. 2: 992. 1753.

FIGURE 80.

Lectotype: Hort. Cliff. 446 (BM).

Stems slender, to 1 m long; foliage dense, especially compact apically, lax toward stem base. Leaves (7 or 8 to) 9 or 10 per node, 1.0-1.5 cm long, 1 or 2 times forked, ultimate segments linear, flattened, with 4 or 5 aculeate marginal teeth, terminating in 2 bristles. Flowers 1-2 mm long; bracts 10 to 12, linear-lanceolate; staminate flowers reddish, stamens numerous, anthers ca. 1 mm long; pistillate flowers with 1 ovoid ovary, style filiform, stigma oblique. Achenes ovoid-oblong, 5 mm long, smooth or verrucose, capped by elongated, indurated 8-10-mm style, basally bearing (1 or) 2 short basal tubercles or 2 basal, reflexed, 5-7-mm-long spines; embryo with simple first plumule leaves.

GENERAL DISTRIBUTION: Cosmopolitan in stagnant to fast-moving freshwater habitats in the northern hemisphere, rather more sporadic in the southern.

DISTRIBUTION IN LESSER ANTILLES: Martinique, Barbados.

COMMON NAMES: Coontail (in Florida), hornwort (aquarium trade name).

NOTES: A species found in calm hardwater habitats, often over marl or limestone substrates. Though reported from the Lesser Antilles, no collections have been seen to document this distribution. Urban (Symb. Antill. 8: 223. 1920) referred to collections from "Plée, anne e Portorico?" and Barbados "ex Mayc. Maycock." Our descriptions were prepared from Greater Antillean material.

Wilmot-Dear (loc. cit. p. 266) quotes Louden as citing collections from Dominica. This is an error; the collections Louden refers to (loc. cit. p. 133) are from the Dominican Republic, and he specifically comments (p. 135) that Lesser Antillean material is absent in American herbaria. Wilmot-Dear examined very little material of American plants. Her sample sizes are so small as to call into question some of her conclusions. The habitat requirements of the two species, based on our study of American plants, are not so clearly separable as indicated. We have seen herbarium material, and collected plants, of *Ceratophyllum demersum* from hard, alkaline waters in South Florida and the Greater Antilles, a habitat where Wilmot-Dear claims this species does not occur.

RANUNCULACEAE

by Elizabeth A. Kellogg

RANUNCULACEAE A. L. Juss., Gen. Pl. 231. 1789.

Herbs or climbers. Leaves opposite (in our area, alternate elsewhere), compound (simple), exstipulate. Flowers regular (irregular elsewhere); sepals 3 to

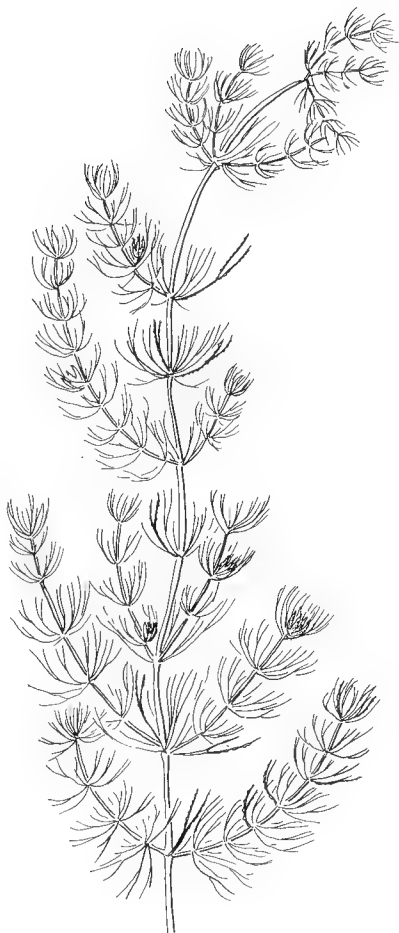


FIGURE 80. *Ceratophyllum demersum*, x 0.7.

15, generally caducous, sometimes petaloid; petals 0 (5); stamens numerous; carpels numerous, 1-celled, with 1 (many) ovules per cell.

TYPE GENUS: *Ranunculus* L.

A family of 50 genera and ca. 1900 species, of which most are north temperate.

CLEMATIS L.

Clematis L., Sp. Pl. 1: 543. 1753.

Scrambling vines or low herbs, herbaceous to woody, dioecious or polygamodioecious. Leaves opposite, simple to compound. Inflorescences cymose or paniculate. Sepals 4 or 5, valvate, pubescent, caducous; petals absent; stamens numerous, spreading, filaments flattened; pistils several to numerous. Fruit a 1-seeded achene, style elongate, plumose, persistent.

TYPE SPECIES: *Clematis vitalba* L.

A genus of about 250 species, most of which are temperate. Many are of horticultural value.

Clematis dioica L., Syst. Nat. ed. 10, 2: 1084. 1759.

FIGURE 81.

Lectotype: LINN 712.8.

Syn.: *Clematis guadeloupae* Pers., Syn. Pl. 2: 99. 1806. (Type: Guadeloupe, *Badier s.n.* (P-LAM, IDC 6207. 1: 1, 2, photo!).)

Herbaceous vine, climbing on shrubs and small trees; dioecious or polygamodioecious. Leaves opposite, with petioles to 8 cm long; blades trifoliolate; leaflets with petiolules to 25 mm long, blades ovate to lanceolate, ultimate leaflet largest, to 9 cm long, glabrous to almost pilose, base cuneate to rounded or subcordate, apex acute to acuminate, trinerved. Inflorescences paniculate to corymbiform; bracts lanceolate, entire, 1 subtending each branch, smaller on more distal branches. Sepals 4, oblong, obovate or oblanceolate, 7-12 mm long, pubescent on both surfaces, caducous soon after anthesis; anthers oblong; pistils numerous, hirsute, ovary flattened, style elongate, flexuous, much shorter pubescent immediately below recurved punctate stigma. Achenes 2-4 mm long, often short stipitate; style accrescent, plumose, ca. 5 cm long.

GENERAL DISTRIBUTION: Widespread throughout Mexico and Central America, northern South America and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!

COMMON NAMES: Liane à crages, vigne sauvage, liane-serpent.

NOTES: *Clematis dioica* is distinguished from *C. virginiana* L. by the entire leaflets of the former and dentate to serrate leaflets of the latter. However, occasional plants of *C. virginiana* have entire leaflets; these occur sporadically throughout the range of the species, but with higher frequency in the southeastern United States. Occasional plants of *C. dioica* with dentate-leaflets occur throughout its range, but these occur with greater frequency on Cuba where they are referred to var. *havanensis*. There are differences in the extent of

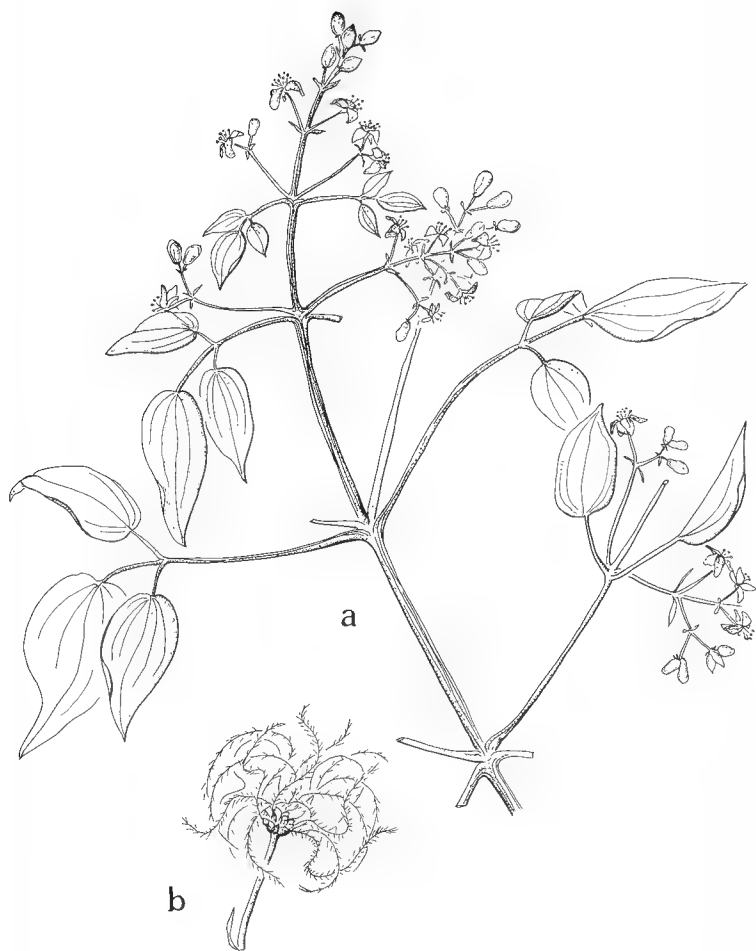


FIGURE 81. *Clematis dioica*, x 0.5: a, habit; b, fruiting cluster.

pubescence in both species and these have been granted greater or lesser importance by different authors. Kuntze has gone so far as to describe all dioecious species in the Western Hemisphere as varieties of *C. dioica*. The group is in need of a careful revision taking into account its entire range.

MENISPERMACEAE

MENISPERMACEAE A. L. Juss., Gen. Pl. 284. 1789.

Vines, climbing shrubs or trees; dioecious. Leaves alternate, exstipulate, entire, coriaceous, membranous or papyraceous; petioles often with upper pulvinus well developed, appearing geniculate with blade. Flowers mostly small, in cymes which are in fascicles, racemes or panicles. Sepals and petals in dimerous or trimerous whorls but varying to 1 sepal and 1 petal; stamens in staminate flower 6 or less, filaments free or fused; carpels 1 to 3, 1 or more developing into drupes; embryo straight or in inverted U shape; endosperm present, often ruminate.

TYPE GENUS: *Menispermum* L.

A family of 65 genera and 350 species, occurring in warm regions throughout the world.

KEY TO THE GENERA

1. Leaves cordate, sinus broad.
 2. Stems conspicuously verrucose, with long aerial roots and abundant, extremely bitter latex or sap; leaves ovate, base cordate; usually flowering in a leafless condition; stamens free; drupes ribbed *Tinospora*
 2. Stems slender, lacking copious sap and aerial roots and not verrucose; leaves hastate with rounded lobes or base truncate; flowering with leaves; stamens variously united; carpels 3, drupes 1 to 3, verrucose-ribbed *Odontocarya*
1. Leaves ovate to nearly round.
 3. Blades peltate, venation palmate; staminate flowers with 4 sepals, stamens 4, united into a column; pistillate flowers with 1 sepal, 1 petal; drupes 4-5 mm dia., red, verrucose *Cissampelos*
 3. Blades not peltate, petioles thin with conspicuous upper pulvinus; venation pinnate with strong basal arching veins; sepals 6 in both staminate and pistillate flowers; stamens 6, free; carpels 3, with 1 maturing; drupes 1-2 cm dia., black *Hyperbaena*

CISSAMPELOS L.

Cissampelos L., Sp. Pl. 2: 1031. 1753.

Climbing plants. Leaves rounded to ovate, subcordate or peltate. Staminate flowers in corymbose cymes, sepals 4, petals united into short cup, stamens connate into column with 4 sessile anthers; pistillate flowers cymose in large bracteate elongated inflorescences, sepal 1, petal 1, opposite sepal and half its size, pistil 1, glabrous or pubescent, style flaring at apex and lobed. Drupes subglobose, more or less hispid; seed with curved embryo, endocarp verrucose.

LECTOTYPE SPECIES: *Cissampelos pareira* L.

A genus of 30 species found in tropical areas. For more information, see G. Troupin, Bull. Jard. Bot. État **25**: 140. 1955; and D. G. Rhodes, in Phytologia **30**: 414-484. 1974.

Cissampelos pareira L., Sp. Pl. **2**: 1031. 1753.

FIGURE 82.

Type: Plum., Pl. Amer. t. 93. 1756.

Slender vines, to 5 m long. Leaves with petioles 3-7 cm long; blades ovate to rounded, 2-12 x 2-10 cm, peltate or cordate, primary veins 7, palmate pubescent on both surfaces or persistently so only on lower surface or completely glabrous, base rounded or emarginate, apex acute and apiculate to obtuse. Inflorescences axillary, the staminate of pedunculate cymes or paniculate with cymose



FIGURE 82 (left). *Cissampelos pareira*: a, staminate plant, x 0.4; b, pistillate inflorescence, x 0.4. FIGURE 83 (right). *Hyperbaena domingensis*, x 0.4.

branches, peduncle to 3 cm long, ebracteate, sepals 1-1.5 mm long, petals shorter, staminal column to 1 mm long; pistillate inflorescences to 10 cm long, with flowers fascicled or in cymes in axils of bracts, bracts diminishing in size acropetally, sepals 1.5 mm long, petals half that size. Drupes 4-5 mm in diameter, strongly curved, red, pilose, endocarp verrucose.

GENERAL DISTRIBUTION: Worldwide in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Martin!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Marie Galante!, Martinique!, Dominica!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Velvet leaf, liane amère, liane-cordé, liane molle, liane serpent.

NOTES: The various pubescent forms have been formally described as formae or varieties but seem indistinguishable. Rhodes (l.c. 441) recognized *C. andromorpha* DC. and cited two collections from "Costa Rica, Eggers 824 (GH), and Imary (sic) 207." Both collections are from Dominica and if correctly identified would be the only record of *C. andromorpha* from the Lesser Antilles. I believe both specimens are to be referred to *C. pareira*.

HYPERBAENA Bentham

Hyperbaena Miers ex Benth., J. Linn. Soc., Bot. 5, Suppl. 2: 47. 1861.

Slender woody lianas or trees. Leaves ovate, elliptical or oblong, leathery and rigid. Staminate flowers in axillary panicles, the congested branches cymose, sepals 6 in 2 series, the inner twice size of outer, stamens 6, free; pistillate flowers in simple racemes, bracteoles and axis pubescent, perianth similar to staminate, staminodes 6, carpels 3. Drupes large, moderately fleshy, blue or black; seed curved in an inverted U.

TYPE SPECIES: *Hyperbaena nemoralis* Miers.

A genus of 19 species native to tropical America. For more information, see M. E. Mathias & W. L. Theobald, *Brittonia* 33: 81-104. 1981.

Hyperbaena domingensis (DC.) Benth., J. Linn. Soc., Bot. 5, Suppl. 2: 50. 1861. FIGURE 83.

Basionym: *Cocculus domingensis* DC., Syst. Nat. 1: 528. 1817.

Type: Dominican Republic, Poiteau "1802" (holotype, P).

Stout climbing shrub or vine to 10 m tall. Leaves with petioles 2-3 cm long, upper pulvinus well developed; blades often geniculate with petiole, variable in shape, mostly ovate-elliptic to oblanceolate, 6-13 x 3-7 cm, coriaceous, venation reticulate and prominent on both sides when dry, base rounded, apex acute. Inflorescences 5-25 cm long, pistillate shorter. Drupes slightly obovate in outline, 1-1.5 cm long, 1 cm wide and thick, strongly grooved, black.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, Tobago, northern South America, Guianas to Bolivia.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Liane-bambouche bâtard, liane à remèdes.

NOTES: Urban (in Symb. Antill. 1: 304. 1899) cited an anonymous collection in Herb. Haun. from Montserrat as *H. laurifolia* (Poirot) Urban. This is a species of Puerto Rico and the Virgin Islands, distinguished from *H. domingensis* by larger fruits. Early collections from the West Indies seem often to be mixed for localities in the old Danish Islands of St. Thomas and Montserrat. Mathias and Theobald did not indicate *H. laurifolia* to be in the Lesser Antilles.

ODONTOCARYA Miers

Odontocarya Miers, Ann. Mag. Nat. Hist. 3, 14: 99. 1864; Contr. Bot. 3: 60. 1871.

Vines. Leaf blades ovate to elliptic, longer than wide, venation 3- or 5-plinerved, basal lobes rounded, shallowly cordate, truncate or cuneate, apex acuminate. Inflorescences on current year's growth, staminate pseudoracemose, flowers fascicled at nodes, sepals 6 in unequal series, petals 6, stamens 6, filaments united up to anthers; pistillate inflorescences racemose, flowers borne singly, staminodes 3 to 6, carpels 3. Drupes ellipsoid; endocarp ridged.

TYPE SPECIES: *Odontocarya acuparata* Miers

A genus of about 30 species in tropical and subtropical South America extending into the Lesser Antilles and Central America. For more information, see R. C. Barneby, Mem. New York Bot. Gard. 20(2): 81-158. 1970.

KEY TO THE SPECIES

- Leaf blades mostly hastate at base, lobes rounded or angulate, 5-plinerved, apex triangular and mucronulate *O. tamoides*
Leaf blades cordate to sinuately truncate but not angled at base, 3-plinerved; apex abruptly acuminate *O. smithiorum*

Odontocarya smithiorum Diels in Engler, Pflanzenr. IV, 94: 170. 1910.

Type: St. Vincent, H. H. & G. W. Smith 1891 (K).

Vine to 12 m. Leaves with petioles 4.5 cm long; blades ovate-elliptic, 7-11 x 4-6.5 cm, papery, primary nerves 3, base truncately rounded, apex abruptly acuminate, acumen 4-5 mm long. Staminate inflorescences pseudoracemose, 3.5-6.5 cm long, flowers in fascicles of 2 or 3, pedicels 2-4 mm long, outer 3 sepals narrowly ovate, 0.9 mm long, inner 3 suborbicular, 1-2 mm long; petals 6, obovate, 0.8 mm long, stamens 6, 3 outer free to near base, inner 3 connate; pistillate inflorescences and fruits unknown.

GENERAL DISTRIBUTION: Known only from the single sheet of the type collection.

Odontocarya tamoides (DC.) Miers, Ann. Mag. Nat. Hist. 3, **14**: 100. 1864;
Contr. Bot. **3**: 63. 1871. FIGURE 84.

Basionym: *Cocculus tamoides* DC., Syst. Nat. **1**: 511. 1817.

Type: Cayenne, *Martin s.n.* (P).

Syn.: *Odontocarya tamoides* (DC.) Miers var. *canescens* (Miers) Barneby, Mem. New
York Bot. Gard. **20**(2): 91. 1970.

Odontocarya hederacea (Miers) Miers var. *canescens* Miers, Ann. Mag. Nat. Hist.
3, **14**: 101. 1864; Contr. Bot. **3**: 64. 1873. (Type: Guiana, *Parker s.n.* (K).)

Cocculus pauper Griseb., Abh. Königl. Ges. Wiss. Göttingen **7**: 162. 1857. (Type:
Guadeloupe, *Duchassaing s.n.*)

Slender vine. Leaves with petioles 2-8.5 cm long; blades ovate, 5-11.5 x 3.5-9 cm, sparsely pubescent both surfaces, 5-plinerved, domatia in axils of primary veins, base cordate, sagittate or angulately lobed, apex acuminate. Inflorescences axillary, solitary or in unequal pairs; staminate axis to 22 cm long, flowers 4 or 5 in fascicles, outer sepals deltoid-ovate, 0.7-1.5 mm long, inner 2-4 mm long; petals 6, obovate, outer 2-2.5 mm long, inner shorter; stamens 6, filaments connate almost up to anthers; pistillate inflorescence 4-14 cm long, loosely 6 to 12 flowered. Drupes 10-11 mm long, 6-8 mm in diameter; exocarp reddish-orange drying black; endocarp with 3 or 4 rows of subacute tubercles.

GENERAL DISTRIBUTION: Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique!.

NOTE: This is probably an introduction of the St. Pierre Botanical Garden and was only recollected in Martinique in 1978.

TINOSPORA Miers

Tinospora Miers, Ann. Mag. Nat. Hist. 2, **7**: 35. 1851.

Woody climbers. Leaves with petioles swollen and geniculate at base; blades often cordate, entire, rarely lobed, palmately nerved with 3 to 5 basal veins, sometimes with domatia and glandular patches. Inflorescences thyrsoid or pseudopaniculate, staminate flowers with 6 free sepals, outer 3 smaller, petals 6, usually fleshy, stamens 6, free; pistillate flowers with sepals and petals similar to staminate, staminodes 6, carpels 3, stigmas reflexed. Drupes 3; endocarp bony, dorsally convex, often verrucose or tuberculate; endosperm ruminant.

TYPE SPECIES: *Menispermum cordifolium* Willd. = *Tinospora cordifolia* (Willd.) Hook. f. & Thomson.

An Old World genus of 32 species with seven in tropical Africa, two in Madagascar and 23 in Asia and the Pacific islands. For more information, see L. L. Forman, Kew Bull. **36**: 375-421. 1982.

Tinospora crispa (L.) Hook. f. & Thomson, Fl. Ind. **1**: 183. 1855. FIGURE 85.

Basionym: *Menispermum crispum* L., Sp. Pl. ed. 2, **2**: 1468. 1763.

Type: Rumph. Herb. Amboin. **5**: 83, t. 44, f. 1.

Woody climber to 15 m, glabrous, stems fleshy, very conspicuously tubercu-

late on older stems, with long filiform aerial roots. Petioles 5-15 cm long, blades broadly ovate to orbicular, 7-17 cm x 6-12 cm, apex long acuminate, base deeply cordate, palmately 5-7-nerved. Inflorescences not appearing with the leaves, staminate from older stems, pseudoracemose, 9-20 cm long, flowers in fascicles of 1-3, pedicels 2-4 mm long; sepals pale green, the outer 1-1.5 mm, the inner 3-4 mm; petals 3, 2 mm; stamens 6; pistillate inflorescence 2-6 cm; flowers mostly borne singly, staminodes 6, carpels 3. Drupe orange, ellipsoidal, 2 cm, surface with conspicuous dorsal ridge.

GENERAL DISTRIBUTION: China to Thailand, the Philippines to Java.

DISTRIBUTION IN LESSER ANTILLES: Montserrat, at ruins of Sturges Cottage in Olveston area of Central Hills.

NOTE: This plant is said to have an exceedingly bitter milky sap which, it is reported, is used in Thailand as a muscle relaxant. Elsewhere in Asia a decoction of the stem is used as a febrifuge, in place of quinine as an antimalarial, or as a vermifuge. There is no record of its introduction to the botanical gardens in the Lesser Antilles. The present plant was collected in staminate flower in March and April, and persists in an abundant tangle on the ruins of the foundation of an old house.



FIGURE 84 (left). *Odontocarya tamoides*, x 0.2. FIGURE 85 (right). *Tinospora crispa*, x 0.5.

MAGNOLIACEAE

by Elizabeth A. Kellogg

MAGNOLIACEAE A. L. Juss., Gen. Pl. 280. 1789.

Trees; bark bitter aromatic, frequently light colored. Stipules sheathing, caducous. Leaves alternate, entire. Flowers terminal or axillary, large, showy, fragrant. Sepals and petals intergrading, arranged in whorls, hypogynous on elongate receptacle; stamens numerous; carpels numerous, separate or coherent. Fruit an aggregate of 1- or 2-seeded follicles or achenes, dry or fleshy.

TYPE GENUS: *Magnolia* L.

A family of 12 genera and 230 species, growing in America and eastern Asia. For more information, see H. P. Nooteboom, *Blumea* **31**: 65-121. 1985. Fournet (1978) cites Duss as reporting *Magnolia grandiflora* L. cultivated here and there, but we have seen no specimens of the genus.

KEY TO THE GENERA

- Flowers terminal; tepals 7-8 cm; outer carpel walls woody, united, splitting and separating as a unit *Talauma*
Flowers axillary; tepals 2.5-3 cm; fruiting carpels leathery, separate on the axis, individually dehiscent *Michelia*

MICHELIA L.

Michelia L., Sp. Pl. **1**: 536. 1753.

Cultivated trees; bark white to gray, fragrant. Stipules fused to petiole for part of their length, caducous. Leaves with petioles channeled; blades ovate to elliptic, leathery, densely pubescent when young, glabrescent with age, base cuneate, apex acute to acuminate. Flowers axillary; receptacle elongating and often becoming curved in fruit. Carpels developing as separate woody, ovate follicles; seeds red, 2 per carpel.

TYPE SPECIES: *Michelia champaca* L.

A genus of ca. 50 species, native to tropical Asia.

Michelia champaca L., Sp. Pl. **1**: 536. 1753.

FIGURE 86.

Lectotype: Fl. Zeyl. 144 (BM).

Small trees. Stipules densely pubescent, rarely over 1 cm long. Largest leaves with petioles 1.5-3 cm long; blades 15-21 x 6-8.5 cm. Flowers with pedicels 0.5-1 cm long, silvery pubescent; spathe 2-3 cm long; tepals linear to narrowly oblanceolate, 2.5-3 cm long, acute, white or ivory. Fruits to 11 cm long, individual follicles to 2 x 1.4 cm.

GENERAL DISTRIBUTION: Native to Asia; cultivated elsewhere in tropics.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!.

TALAUMA A. L. Juss.

Talauma A. L. Juss., Gen. Pl. **2**. 281. 1789.

Trees. Stipules adnate to petiole and persistent through early leaf expansion, leaving elongate corky scar almost to apex of petiole. Leaves evergreen, leathery, entire. Flowers terminal, solitary or rarely corymbiform, surrounded by spathe-like bract that flares and persists through anthesis; outer perianth segments 3, inner segments 6; stamens in 2 or more series, filaments much shorter than anthers, anthers linear; carpels 10 or more, fused, ovules 2, one above the other. Fruits woody, carpels accrescent and becoming fused; outer surface splitting irregularly and falling off as a whole; seeds red-brown, woody, hanging from woody carpel base by long funiculi.

TYPE SPECIES: *Talauma plumieri* (Sw.) DC. = *Talauma dodecapetala* (Lam.) Urban.

A genus of 50 species of Asia and America.

Talauma dodecapetala (Lam.) Urban, Repert. Spec. Nov. Regni Veg. **15**: 306. 1918. FIGURE 87.

Basionym: *Annona dodecapetala* Lam., Encycl. **2**: 127. 1786.

Type: Not designated.

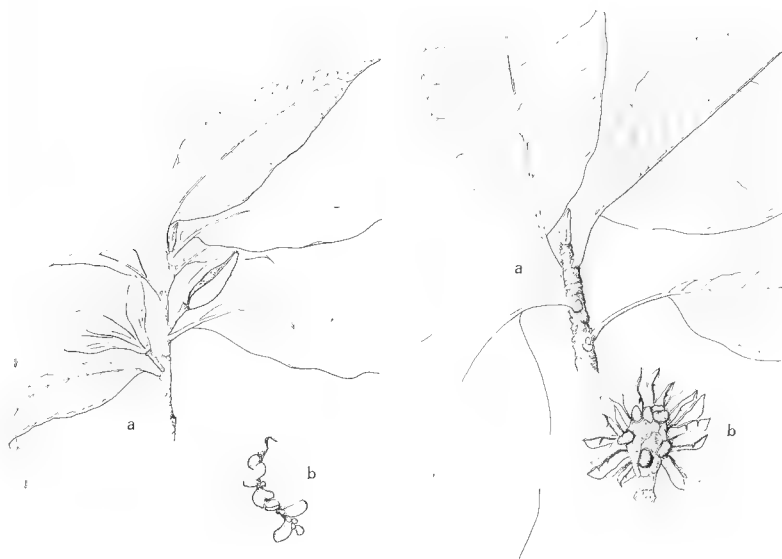


FIGURE 86 (left). *Michelia champaca*: a, habit, x 0.25; fruit cluster, x 0.25. FIGURE 87 (right). *Talauma dodecapetala*: a, vegetative shoot, x 0.25; b, fruit and seeds, x 0.2.

Syn.: *Magnolia plumieri* Sw., Fl. Ind. Occid. 2: 997. 1797. (Type: St. Lucia, Martinique, Guadeloupe, anon. (s, not seen); *Masson s.n.* (BM!) could be part of type material.)

Talauma plumieri (Sw.) DC., Prodr. 1: 81. 1824.

Magnolia linguifolia Descourt., Fl. Méd. Antilles 2: 140, pl. 103. 1822. (Syntypes: St. Lucia, Guadeloupe, "et aux autre îles Antilles," *Descourtilz s.n.*, probably destroyed in Haiti; neotypification not attempted here.)

Trees to 60 m tall; trunk lightly fissured, developing large buttresses; branches sericeous to glabrate. Stipules to 7 cm long. Leaves heteromorphic; juvenile leaves lanceolate, ca. 40 x 15 cm, older leaves oval to obovate-oblong, 18-30 x 10-18 cm, glabrous, apex and base acute to rounded. Floral bracts 5-10 cm long; pedicel 2-5 mm long; flowers white, outer perianth segments broadly oval, 7-8 x 3 cm; inner segments similar or more oblong, 11-12 x 3 cm; filaments 2-4 mm long, anthers 1.6 cm long; carpels 40 or more, entire gynoeceium globose to obovoid, 2.5-3 x 2 cm, becoming 6-8 cm in diameter in fruit.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique, St. Lucia!, St. Vincent!.

COMMON NAMES: *Magnolia*, bois pin, pin, pomme pin, cachiman montagne, bois cachiman, wild breadfruit, pain marron, bois pan mar, bwapen mawon.

NOTES: H. Keng (Gard. Bull. Straits Settle. 31: 127-131. 1978) suggests that *Talauma* should be merged with *Magnolia*, but does not supply the appropriate combination for *T. dodecapetala*. This conclusion has also been reached by H. P. Nootboom (loc. cit.).

ANNONACEAE

ANNONACEAE A. L. Juss., Gen. Pl. 283. 1789, nom. cons. ('Anonae').

Trees, shrubs, or woody climbers. Leaves alternate, evergreen or deciduous, coriaceous or chartaceous. Inflorescences terminal, axillary, extra-axillary, or opposite leaves, also rami- to cauliflorous; flowers perfect or plants occasionally monoecious or dioecious. Calyx of 3 free or united, valvate or imbricate sepals; corolla of 6 free or united petals, in 2 series, inner ones sometimes reduced to scales or wanting, valvate or imbricate; stamens numerous, filaments short or wanting; carpels few to many, free or united, ovules 1 to several, styles short or absent, stigmas capitate or clavate. Fruits composed of free monocarps or fleshy syncarps; seeds solitary to numerous, large; embryo minute, endosperm ruminate.

TYPE GENUS: *Annona* L.

About 120 genera and 2000-2500 species.

ACKNOWLEDGMENT: This treatment was checked and corrected by Mrs. E. C. H. van Heusden and Dr. P. J. M. Maas of the Institute of Systematic Botany, Utrecht. Their contribution, correlated with the Institute's work on the family, is deeply appreciated.

KEY TO THE GENERA

1. Inflorescence not on flattened hooked branchlet.
 2. Carpels free in fruit; flowers axillary (or rami- or cauliflorous), petals (sub)equal in length.
 3. Midrib prominent on upper side of leaf *Unonopsis*
 3. Midrib immersed on upper side of leaf.
 4. Monocarps 1-seeded; petals < 3 cm long, fleshy.
 5. Articulation of pedicel basal *Oxandra*
 5. Articulation of pedicel suprabasal *Guatteria*
 4. Monocarps several-seeded; petals > 3 cm long, membranous (cultivated) *Cananga*
 2. Carpels united in fruit; flowers leaf-opposed or extra-axillary or, if axillary, inner petals strongly reduced.
 6. Outer petals dorsally winged *Rollinia*
 6. Outer petals not winged.
 7. Petals fleshy *Annona*
 7. Petals membranous (cultivated) *Monodora*
1. Inflorescence on flattened hooked branchlet (cultivated) *Artabotrys*

CULTIVATED TAXA

Artabotrys hexapetalus (L. f.) Bhandari (= *Artabotrys odoratissimus* R. Br., not Blume, *Artabotrys uncinatus* (Lam.) Merr.) is a climbing shrub with flattened hooked inflorescence tips. It currently exists in several old botanical gardens, but has not escaped or become established.

Cananga odorata (Lam.) Hook. f. & Thomson, the ylang-ylang, is cultivated on Montserrat and probably on other islands.

Dugetia lucida Urban was reported by Fries (Acta Horti Berg. 12(1): 49. 1934) to be from St. Vincent based on an Anderson specimen (K). Alexander Anderson noted in his unpublished Hortus that he introduced the plants as seed from Trinidad in 1786 and that in subsequent years the French brought in additional plants. Nevertheless the taxon has not been collected in recent years.

Monodora tenuifolia Benth. is cultivated in the St. Vincent Botanic Garden.

ANNONA L.

Annona L., Sp. Pl. 1: 536. 1753.

Trees or shrubs. Leaves coriaceous or chartaceous. Flowers solitary or in clusters, leaf-opposed, extra-axillary or terminal. Calyx 3-parted, valvate; petals 6 or 3, valvate or sometimes inner whorl imbricate, inner series sometimes reduced to scales; stamens with truncate connective; carpels numerous, often cohering, ovule solitary. Fruits large, formed of united carpels.

TYPE SPECIES: *Annona muricata* L.

About 100 species, in tropical America and Africa, and cultivated elsewhere in the tropics. For more information, see R. E. Fries, Acta Horti Berg. 10(2): 197-314. 1931.

KEY TO THE SPECIES

1. Flowers subglobose; petals 6, outer ones broadly ovate, inner ones at least half as long as outer.
 2. Leaves with domatia in axils of lateral veins; inner petals imbricate; fruits armed with fleshy protuberances.
 3. Fruits armed with long curved protuberances *A. muricata*
 3. Fruits with small straight spinules *A. montana*
 2. Leaves without domatia in axils of veins; inner petals shorter than outer petals; fruits smooth *A. glabra*
1. Flowers elongate; petals 3 or, if 6, inner ones very small; outer ones oblong, 4-6 mm wide.
 4. Leaves (almost) glabrous below.
 5. Fruits of numerous loosely cohering carpels, rounded on back and tuberculate; pulp custardlike *A. squamosa*
 5. Fruits smooth or nearly so, surface areolate; pulp tallowlike *A. reticulata*
 4. Leaves with persistent hairs below *A. cherimola*

Annona cherimola Miller, Gard. Dict. ed. 8. 5. 1768.

Type: Not determined.

Tree to 5 m tall. Leaves with petioles 8-12 mm long; blades elliptic, 8-12 x 4-6 cm, upper side sericeous when young, becoming glabrous, lower side with patent hairs, base cuneate, decurrent, apex obtuse to acute. Flowers solitary or in pairs, on pedicels 8-12 mm long; calyx lobes triangular, 2-4 mm long, acute; petals linear, 15-25 x 4 mm, apex obtuse. Fruits subovoid, edible; seeds black.

GENERAL DISTRIBUTION: Greater Antilles, Bermuda, Mexico, Central America, Colombia to Bolivia.

DISTRIBUTION IN LESSER ANTILLES: Martinique, St. Lucia.

Annona glabra L., Sp. Pl. 1: 537. 1753.

Type: Not determined.

Syn.: *Annona palustris* L., Sp. Pl. ed. 2, 1: 757. 1762. (Type: not determined.)

Annona laurifolia Dunal, Monogr. Anonac. 65. 1817. (as "Anona") (Type: not determined.)

Tree 5-10 m tall. Leaves with petioles 7-25 mm long; blades oblong-elliptic to ovate, 6-15 x 5-7 cm, glabrous, base rounded, apex acute or shortly acuminate. Flowers solitary, nodding on stout pedicels 10-15 mm long; calyx lobes depressed ovate, 3-5 mm long, acute; petals valvate, thick and fleshy, concave, outer ones broadly ovate, 15-34 mm long and wide, cream-colored or greenish-yellow, sometimes deep red at base inside, inner ones ovate, 8-25 mm long, dull white outside, blood red inside at base. Fruits ovoid, 6-12 x 5-8 cm, smooth, faintly areolate, rounded at top, impressed at base, yellow with brownish blotches when ripe; pulp orange, aromatic, insipid; seeds 15 mm long, light brown.

GENERAL DISTRIBUTION: Greater Antilles, Florida, along coast from Mexico to Southern Brazil, western Africa.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Barbuda!, Montserrat!, Guadeloupe!, Marie Galante!, La Désirade!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Pond apple, dog apple, gut apple, cachiman cochon, bois flot, cajuca, mamain, monkey apple.

***Annona montana* Macfad.**, Fl. Jamaica 1: 7. 1837.

Type: Not determined.

Small tree. Leaves with petioles 6-10 mm long; blades obovate-oblong to ovate, 6-18 x 2.5-7 cm, upper side glabrous, lower side sericeous when young, base acute or rounded, apex abruptly short-acuminate to acute. Flowers solitary, on stout pedicels 15 mm long; calyx lobes broadly triangular, 5-6 mm long, acute; petals green or yellow, thick, outer ones broadly ovate, valvate, 35-47 x 27-32 mm, inner ones broadly obovate or elliptic, clawed. Fruits broadly ovoid or subglobose, 6-10 cm in diameter, skin dark green, areolate, with small fleshy, straight spinules; pulp yellowish, insipid; seeds 20-23 x 10-12 mm, light brown.

GENERAL DISTRIBUTION: Greater Antilles, tropical South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, Guadeloupe!, Martinique!, St. Vincent!.

COMMON NAMES: Wild soursop, mountain soursop, cachiman-montagne.

***Annona muricata* L.**, Sp. Pl. 1: 536. 1753.

FIGURE 88.

Type: Not determined.

Tree 4-10 m tall. Leaves with petioles 4-14 mm long; blades obovate-oblong to elliptic-oblong, 3-17 x 2.5-7 cm, when young rusty pubescent below, with domatia in axils of veins, base acute or rounded, apex shortly acuminate. Flowers on stout pedicels 15-20 mm long; calyx lobes broadly triangular, 14 mm long, acute; petals thick, fleshy, concave, outer ones broadly ovate, valvate, 28-40 x 20-30 mm, yellow; inner ones smaller and thinner, shortly clawed, imbricate. Fruits ovoid, ellipsoid or heart-shaped, 15-40 x 9-25 cm; skin dark green, areolate, each areole with curved spinule; pulp white; seeds oblong-elliptic, 14-17 x 9-12 mm, brown.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, Mexico, Central and tropical South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Barbuda!, Saba!, St. Eustatius! Montserrat!, Guadeloupe!, Marie Galante!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Guanábana, soursop, corosolir, corossol, corosolier.

NOTE: *Annona muricata* f. *mirabilis* R. E. Fries, Ark. Bot. 21A, 9: 11. 1927, with linear leaves, was based on *Duss 3993* (B, presumed destroyed) from Guadeloupe and seems not to have persisted.



FIGURE 88. *Annona muricata*, x 0.25.

***Annona reticulata* L., Sp. Pl. 1: 537. 1753.**

Type: Not determined.

Tree to 10 m tall. Leaves with petioles 6-18 mm long; blades oblong to lanceolate, 7.5-21 x 2.5-5 cm, puberulent when young, base acute or rounded, apex acute or acuminate. Flowers several per cluster, on pedicels 15-25 mm long; calyx lobes triangular, acuminate, 2-3 mm long; outer petals fleshy, lanceolate, 20-30 x 4-5.6 mm, olive-green or yellowish, usually deep purple inside at base; inner petals minute, ovate to lanceolate. Fruits subglobose, 8-12 cm in diameter, smooth, reticulate-areolate, usually reddish-brown when ripe; pulp yellowish; seeds oblong, brown, shining.

GENERAL DISTRIBUTION: Greater Antilles, Tobago, Mexico, Central America, and South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Custard apple, bullock's heart, cachiman, coeur du boeuf, cachiman blanc, cachiman rouge.

***Annona squamosa* L., Sp. Pl. 1: 57. 1753.**

Type: Not determined.

Small tree 2-10 m tall. Leaves with petioles 5-14 mm long; blades elliptic to ovate, 2.5-17 x 3-7 cm, glabrous, base narrowed and rounded, apex acute. Flowers 2 or more per cluster on pedicels to 1.5 cm long; calyx lobes triangular, 1.5 mm long, acuminate; outer petals linear-oblong, 16-25 x 5-7 mm, thick and triangular in section, purple at base inside, inner petals ovate or obovate. Fruits subglobose or ovoid, 5-9 cm in diameter, composed of numerous loosely cohering carpels, rounded on back, greenish-yellow when ripe, with glaucous bloom; pulp white; seeds oblong or oblong-elliptic, 10-15 x 6.5-9 mm, brown.

GENERAL DISTRIBUTION: Greater Antilles, Mexico, Central America, tropical South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, Nevis, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Sweet sop, sugar apple, pomme-cannelle, custard apple.

GUATTERIA Ruiz & Pavon

***Guatteria* Ruiz & Pavon, Fl. Peruv. Prodr. 85, t. 17. 1794.**

Shrubs or trees. Leaves coriaceous. Flowers solitary or few, axillary, pedicels articulate suprabasally, bracteate below articulation. Sepals 3 valvate; petals 6, biseriate, imbricate, (sub)equal, erect or spreading; stamens numerous, connective produced beyond anthers into truncate apex; carpels numerous, free, ovule solitary, basal. Fruits apocarpous, stipitate.

TYPE SPECIES: *Guatteria eriopoda* DC.

A genus of about 250 species of the New World tropics.

***Guatteria caribaea* Urban, Symb. Antill. 4: 240. 1905.**

FIGURE 89.

Lectotype: Puerto Rico, *Sintenis 1535* (B).

Tree to 40 m tall. Leaves with petioles 3-8 mm long; blades oval-elliptic to elliptic oblong, 8-22 x 2.5-7.5 cm, glabrous above, sparsely pilose below, base obtuse, apex long and narrowly acuminate. Flowers solitary, on pedicels 10-20 mm long; sepals broadly ovate, 3-4 mm long, acuminate; petals narrowly oblong, 10-18 x 3.5-5.5 mm. Monocarps on 1-4 mm long stipes, narrowly oblong, base attenuate, apex obtuse or subacute, 1.8-2.2 x 0.6-0.7 cm, black.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.



FIGURE 89. *Guatteria caribaea*, x 0.5.

COMMON NAMES: Mahot anglais, corossol marron, mahoe cachon, bois violin, ti cachiman-bois, corossol montagne, petit cachiman des bois, bois de l'Anglais.

OXANDRA A. Rich.

Oxandra A. Rich. *in* Sagra, Hist. Phys. Cuba, Bot. **10**: 20. 1845.

Trees or shrubs. Leaves coriaceous. Flowers solitary or clustered, axillary; pedicels with many bracts at base. Calyx 3-parted, imbricate; petals 6, imbricate; stamens 6 to 20, connective produced beyond anthers into long tapering apex; carpels several, distinct; ovule solitary, basal. Fruits apocarpous, ellipsoid, shortly stipitate to sessile.

TYPE SPECIES: *Oxandra laurifolia* (Sw.) A. Rich. = *Uvaria laurifolia* Sw.

About 22 species of tropical Central and South America and the West Indies.

Oxandra laurifolia (Sw.) A. Rich. *in* Sagra, Hist. Phys. Cuba, Bot. **10**: 20. 1845.

FIGURE 90.

Basionym: *Uvaria laurifolia* Sw., Fl. Ind. Occid. **2**: 1001. 1800.

Lectotype: Jamaica, Swartz s.n. (s).



FIGURE 90 (left). *Oxandra laurifolia*, x 0.33. FIGURE 91 (right). *Rollinia muscosa*, x 0.33.

Tree to 25 m tall. Leaves with petioles 2-3 mm long; blades elliptic-oblong to elliptic, 8-19 x 2.5-5 mm, villous when young, becoming glabrous, base acute to rounded, apex acuminate. Flowers solitary or few, on pedicels 2-4 mm long; calyx lobes semioval, 1-1.5 mm long; outer petals oblong or oblong-elliptic, 6-7 mm long, apex obtuse. Monocarps ellipsoid, 1.5-1.7 x 0.8-1.0 cm, long stipitate.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis!, Guadeloupe!, Martinique!.

COMMON NAMES: Okra, bois de l'an.

ROLLINIA A. St. Hil.

Rollinia A. St. Hil., Fl. Bras. Merid. 1: 28, t. 5. 1824.

Trees or shrubs. Leaves coriaceous or chartaceous. Flowers in few-flowered clusters, leaf-opposed or extra-axillary. Calyx 3-parted, valvate; petals 6, biseriate, united at base, outer 3 produced into wings, inner 3 reduced to scales; stamens numerous, connective with truncate apex; carpels numerous, often cohering; ovule solitary, basal. Fruits large, formed of united carpels, fleshy.

TYPE SPECIES: *Rollinia longifolia* A. St. Hil.

About 65 species of Central and South America and the West Indies.

Rollinia mucosa (Jacq.) Baillon, Adansonia 8: 268. 1868.

FIGURE 91.

Basionym: *Annona mucosa* Jacq., Observ. Bot. 1: 16. 1764.

Type: A collection of Jacquin from Martinique (not seen).

Syn.: *Rollinia sieberi* A. DC., Mém. Soc. Phys. Genève 5: 200. 1832. (Type: Trinidad, Sieber 96 (c).)

Small tree, to 7 m tall. Leaves with petioles 6-11 mm long; blades oblong-elliptic to elliptic, 6-23 x 3-8 cm, pilose below, base acute or rounded, apex acuminate to acute. Flowers solitary or in pairs, on pedicels 20-60 mm long; calyx lobes triangular, acute to long acuminate; outer petals obovate, 15-22 x 6-12 mm. Fruits subglobose, 7 cm in diameter, areolate, each areole with thick angled spinule; pulp white, mucilaginous, sweet, edible; seeds obovate, 13-20 x 8-13 mm, brown.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

COMMON NAMES: Cashiman bois, cachina chen boeuf, cachiman morveux, cachiman montagne, cachiman crème.

UNONOPSIS R. E. Fries

Unonopsis R. E. Fries, Kongl. Svenska Vetenskapsakad. Handl. **34**: 26. t. 4, f. 3-8. 1900.

Trees or shrubs. Leaves coriaceous. Flowers in clusters, axillary or rami- or cauliflorous. Calyx 3-parted, valvate; petals 6, biseriata, inner ones slightly shorter, valvate; stamens numerous, connective with truncate apex; carpels several to numerous, free, ovules 1 to several, lateral (or basal). Fruits apocarpous, monocarps globose, stipitate.

TYPE SPECIES: *Unonopsis angustifolia* (Benth.) R. E. Fries.

About 27 species in the New World tropics.

Unonopsis umbilicata (Dunal) R. E. Fries, Acta Horti Berg. 12, **2**: 252. 1937.

Basionym: *Guatteria umbilicata* Dunal, Monogr. Anonac. 135. t. 33. 1817.

Type: Grenada (?), Forsyth Herbarium (G).

Syn.: *Trigynaea antillana* Rolfe, Bull. Misc. Inform. **1893**: 235. 1893. (Type: St. Vincent, H. H. & G. W. Smith 1359 and 1539 (syntypes, K).)

Unonopsis antillana (Rolfe) R. E. Fries, Kongl. Svenska Vetenskapsakad. Handl. **34**(5): 28. 1900.

Tree to 6 m tall. Leaves with petioles 3-6 mm long; blades elliptic to elliptic-oblong, 10-18 x 3.5-7 cm, sparsely puberulous, base acute to rounded, apex acuminate to obcordate (emarginate). Flowers in few-flowered clusters, on pedicels ca. 10 mm long; calyx broadly ovate, 7-8 mm long, apex acute. Monocarps depressed, "discoid" ex Fries, 1.1-1.2 cm dia.; seeds solitary.

GENERAL DISTRIBUTION: Endemic in Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada (?).

NOTES: The type specimen is attributed to "Forsyth, Grenada." Forsyth was never in the West Indies but maintained a botanical cabinet and received specimens from Alexander Anderson who did visit Grenada and obtained plants for cultivation in the Botanic Garden on St. Vincent. However, no entry in Anderson's unpublished Hortus which we have consulted can be interpreted as this taxon. The H. H. and G. W. Smith collections from St. Vincent are cited by Rolfe as occurring on "forest ridges and vallies." An Eggers collection #6882 (A, B) is also from St. Vincent. It is strange that the plant has not been recollected on this island whose vegetation is well represented in herbaria. The possibility remains that all specimens reported were made from cultivated plants.

MYRISTICACEAE

MYRISTICACEAE R. Br., Prodr. 399. 1810.

Monoecious or dioecious trees. Stipules wanting. Leaves petiolate, alternate, simple, entire. Inflorescences axillary or terminal racemes or panicles or fascicles along branches. Flowers small, perianth 3-lobed, valvate, petals wanting;

anthers 3 or more, dorsally connate into a column; pistil superior, ovary 1-celled, ovule 1, basal, style short or none, stigma disklike. Fruits 2-valvate, pericarp fleshy or leathery; seeds with entire or lacinate fleshy aril; testa smooth, endosperm conspicuously ruminant.

TYPE GENUS: *Myristica* Gronov.

A tropical family of 18 genera and 300 species. For more information, see A. C. Smith, *Brittonia* 2: 393-510. 1938.

KEY TO THE GENERA

Inflorescences axillary or terminal, broadly paniculate, many-flowered, > 2 cm long; fruits 13-21 mm long, pericarp thin and leathery *Viola*
Inflorescences axillary, few-flowered, < 2 cm long; fruits 30-60 mm long, pericarp thick and fleshy *Myristica*

MYRISTICA Gronov.

Myristica Gronov., Fl. Orient. 141. 1755, nom. cons.

Trees. Leaves chartaceous, usually glaucescent below, aromatic when crushed. Inflorescences axillary, flowers few, urceolate or campanulate, pedicellate; stamens 12 to 30. Fruits with fleshy-crustaceous pericarp; seed 1, aril lacinate.

TYPE SPECIES: *Myristica fragrans* Houtt.

A genus of about 120 species of the Old World tropics. *Myristica philippensis* Lam. was once cultivated in the St. Pierre Botanic Garden on Martinique and was collected by Hahn (P).

Myristica fragrans Houtt., Nat. Hist. 2(3): 333. 1774.

FIGURE 92.

Type: Moluccas.

Syn.: *Myristica officinalis* L. f., Suppl. Pl. 265. 1782. (Type: Not designated.)

Tree to 18 m tall. Leaves with petioles 5-15 cm long; blades lanceolate to ovate or elliptic, 8-14 x 3-6 cm, base acute, apex acute to acuminate. Staminate inflorescences usually bifid, 1- to 5-flowered, pedicels 5-12 mm long; perianth urceolate, shallowly 3-lobed, 5-7 mm long, yellow; pistillate inflorescences usually 1-flowered, pedicels 5-15 mm long. Fruits ovoid to oval-obovoid, 3-6 cm long; pericarp yellow, fleshy, bivalved; aril bright red, lacinate; seed brown, 1.5-4.5 cm long.

GENERAL DISTRIBUTION: Native of the Moluccas and cultivated or naturalized in many areas in tropical America.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Nutmeg, muscadier, pied-muscade, noix de muscade. The aril is called mace.



FIGURE 92 (left). *Myristica fragrans*, x 0.33. FIGURE 93 (right). *Virola surinamensis*, x 0.33.

NOTES: The French and the English competed for the introduction of the nutmeg into the Antilles. Alexander Anderson reveals his several attempts in his history of the Botanic Garden (ed. R. A. & E. S. Howard, 1983). See also Bull. Misc. Inf. Bot. Dept. Imp. Coll. Agric. No. 26. 1901.

VIROLA Aublet

Virola Aublet, Hist. Pl. Guiane 2: 904. 1775.

Trees; inner bark often with reddish latex. Leaves petiolate, alternate, submembranous to coriaceous. Inflorescences axillary or subterminal, broadly paniculate, pistillate more compact than staminate, flowers single or fasciculate; staminate perianth small, 3-lobed, filaments connate, anthers 3; pistillate perianth more fleshy, pistil globose, stigma cleft. Fruits globose or ellipsoid, 2-valved; pericarp woody; aril lacinate; seed globose or ellipsoid.

TYPE SPECIES: *Virola sebifera* Aublet.

A genus of 60 species of tropical America.

Virola surinamensis (Rolander) Warb., Nova Acta Acad. Caes. Leop.-Carol. German Nat. Cur. **68**: 208. 1897.

FIGURE 93.

Basionym: *Myristica surinamensis* Rolander ex Rottb., Acta Lit. Univ. Hafn. **1**: 281. 1778.

Type: Suriname, *Rolander s.n.*

Syn.: *Myristica fatua* Sw., Prodr. 96. 1788, not Hoult. (Type: Tobago, *Swartz s.n.* (s).)

Tree to 25 m tall, branches whorled. Leaves with petioles 1.5-2 cm long; blades narrowly oblong, 10-22 x 2-5 cm, coriaceous, base rounded to acute, entire, apex cuspidate, acute or acuminate. Staminate inflorescences broadly paniculate, many-flowered, 7-17 cm long, perianth 1.6-2.4 mm long, golden puberulent; pistillate inflorescences 2-8 cm long, flowers in clusters of 3 to 6, ovary subglobose, densely puberulent. Fruiting inflorescences 6-11 cm long; fruits 3 to 8, pedicellate, ellipsoid or subglobose, 13-21 x 11-18 mm, minutely stipitate at base; pericarp 1-2 mm thick; aril deeply cleft.

GENERAL DISTRIBUTION: Trinidad, Tobago, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Martinique!.

COMMON NAMES: Muscadier fou, wild nutmeg.

NOTES: Smith (loc. cit.) records specimens from Guadeloupe (*Duss 1053*), Martinique (*Belanger 751*, *Duss 4452*, *Plée 744*), St. Vincent (*Anderson s.n.*) and Grenada (*Broadway 621*). Duss (1897) recorded that his collection *1053* was from Martinique, although the label states Guadeloupe, and that only male flowers were known. Anderson records in his unpublished manuscript that a tree 60' tall was in the botanical garden, introduced by Dr. Young from Tobago around 1770. Anderson reintroduced the plant from Trinidad and is known to have sent plants to Grenada where Broadway did collect specimens from cultivated plants. It is probable that all specimens cited by Smith were from cultivated plants. Fournet (1978) records *Virola surinamensis* as cultivated on Martinique, and *V. sebifera* as cultivated here and there without specific locality. Duss reported *Virola sebifera* in the St. Pierre garden. No recent collections of either species have been seen from the Antilles.

MONIMIACEAE

MONIMIACEAE A. L. Juss., Ann. Mus. Nat. Hist. **14**: 133. 1809.

Dioecious shrubs or trees, all parts with a foetid or pleasantly aromatic scent. Stipules wanting. Leaves opposite. Inflorescences axillary, cymose or reduced to a single flower. Flowers regular; perianth lobes 4 to several, often calyptrate; stamens many to few; pistils superior, usually several, pistils and stamens often partially sunken in fleshy receptacle, ovule 1. Fruit an aggregate of achenes in fleshy receptacle, resembling a syconium.

TYPE GENUS: *Monimia* Thouars.

Traditionally a family of 20 genera, only *Siparuna* occurring in the Lesser

Antilles. Recently the segregate family Siparunaceae comprising three genera has been suggested, primarily on differences in anatomical characters.

SIPARUNA Aublet

Siparuna Aublet, Hist. Pl. Guiane 2: 864. 1775.

Syn.: *Citrosma* Ruiz & Pavon, Fl. Peruv. Prodr. 134. 1794; Griseb., Fl. Brit. W. Indian Is. 9. 1859.

Shrubs or small trees. Leaves petiolate, entire to variously dentate or sinuate, membranaceous to almost succulent, pubescent or glabrate. Inflorescences reduced axillary cymes. Staminate flowers with campanulate to globose receptacles, tepals 4 to 7, stamens 7 to 14 in 2 series, anthers valvate, filaments strap-shaped; pistillate flowers similar in shape, on pedicels to 1.5 cm long, pistils 4 to 20, styles filiform, free or united, ovule solitary. Fruits globose or uneven due to development of achenes within fleshy receptacle.

TYPE SPECIES: *Siparuna guianensis* Aublet.

A genus of 150 species of tropical America. In many species the receptacle splits open and displays the light-colored inner tissue and brightly colored seeds. This character has not been observed in species of the Lesser Antilles. Within the Lesser Antilles these plants are found only at higher elevations. For more information see J. Perkins, Bot. Jahrb. Syst. 28: 667-705. 1901; and J. Perkins & S. Gilg in A. Engler, Pflanzenr. IV, 101: 80-115. 1901.

KEY TO THE SPECIES

1. Leaves obscurely undulate to sinuately dentate; base of blade cuneate; leaves and stems glabrous *S. santae-luciae*
1. Leaves dentate with 1 or more small teeth between them; leaves and stems pubescent.
 2. Leaves and stems densely and persistently stellate pubescent *S. scabra*
 2. Plants sparsely stellate pubescent mixed with long persistent pilose pubescence but becoming glabrate *S. glabrescens*

Siparuna glabrescens (Presl) A. DC. in DC., Prodr. 16(2): 648. 1868.

FIGURE 94.

Basionym: *Citrosma glabrescens* Presl, Abh. Königl. Böhm. Ges. Wiss. ser. 5, III: 540. 1844.

Type: Martinique, Sieber 286 (holotype, PR).

Syn.: *Siparuna caloneura* Perkins, Bot. Jahrb. Syst. 28: 681. 1901. (Syntypes: St. Vincent, Eggers 6705b, Guilding s.n., Krause 93, H. H. & G. W. Smith 24.)

Siparuna urbaniana Perkins, Bot. Jahrb. Syst. 28: 683. 1901. (Syntypes: Dominica, Eggers 18 (K), Eggers 528 (G), Imray 67 (K).)

Shrub or small tree to 12 m tall, parts malodorous when crushed. Leaves with petioles 1-2.5 cm long; blades obovate-oblong to broadly ovate, 10-23 x 4-10 cm, base rounded to cuneate and often asymmetrical, margin crenate-dentate, the



FIGURE 94. *Siparuna glabrescens*, x 0.6.

callose teeth pilose, the rest stellate pubescent, becoming glabrate, apex acute. Inflorescences 1-2 cm long; pistillate inflorescences umbellate, flowers on pedicels to 1.5 cm long; staminate inflorescences pedicellate, umbellate to cymose. Tepals 5 or 6, fleshy, cream colored, margins short pilose-ciliate; stamens 10 to 12; pistils 5 to 9. Fruits baccate, strongly sulcate or warty, often asymmetrical, to 15 mm in diameter, red.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Dominica, Martinique!, St. Vincent!.

COMMON NAMES: Bois-citronnier, consoude-grand bois.

Siparuna santae-luciae Perkins, Bot. Jahrb. Syst. **28**: 677. 1901.

Type: St. Lucia, *Ramage s.n.* (lectotype, K).

Shrub to 5 m tall. Leaves with petioles 2.5-3 cm long; blades obovate to obovate-oblong, 13-15 x 6-7 cm, texture thin, glabrate, with a pleasant lemon odor when crushed, base long cuneate, upper portion with slightly undulate margin, apex long acuminate. Inflorescences 5-7 cm long; peduncles 2-4 mm long. Staminate flowers 4 mm in diameter; receptacle cupuliform, twice as long as tepals; tepals 5; stamens 8; pistillate flowers similar, sparsely stellate pubescent. Fruiting peduncle > 1 cm, receptacle 8 mm high, 10 mm dia.

DISTRIBUTION IN LESSER ANTILLES: Endemic to St. Lucia.

Siparuna scabra Perkins, Bot. Jahrb. Syst. **28**: 684. 1901.

Syntypes: St. Vincent, *Eggers 6705*, *Guilding s.n.* (K), *H. H. & G. W. Smith 915* (BM).

Shrub or small tree to 4 m tall. Leaves with petioles 1-2.5 cm long; blades obovate-oblong to oval oblong, 9-16 x 3.5-8 cm, malodorous when crushed, base rounded, margin densely irregularly serrate, the callose teeth conspicuously pilose, the rest densely and persistently stellate pubescent, apex short acuminate. Inflorescences to 1 cm long. Receptacles cupuliform; tepals 6 or 7, white; stamens 8 to 14, pistils 8 to 12. Fruits depressed globose, 7-8 mm in diameter, unevenly sulcate.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, St. Vincent!.

LAURACEAE

LAURACEAE A. L. Juss., Gen. Pl. 80. 1789, nom. cons. ('Lauri').

Trees or shrubs, evergreen or deciduous, foliage usually with aromatic oil cells or, in *Cassytha*, a leafless herbaceous hemiparasite with filiform stems; leaf buds single and naked, or with many bud scales, or perulate. Leaves spiral, subopposite or aggregated and subverticillate, exstipulate, venation pinnate or triplinerved, margin normally entire. Inflorescences axillary or terminal, pani-

culate or racemose. Flowers perfect or unisexual, and the plants monoecious or dioecious; perianth of 2 whorls, tepals usually equal; fertile stamens, usually 9 in whorls of 3, anthers 2- or 4-celled, opening by flaps, the third or inner whorl usually with basal glands on filaments, anthers introrse, extrorse or latrorse, the 4th whorl usually staminodal or wanting; ovary superior or perigynous with slight hypanthium developed, 1-celled, ovule 1, anatropous; style 1, stigma small and inconspicuous. Fruit a 1-seeded berry without endosperm; perianth completely caducous or persistent and developing into a fleshy to woody disc or cyathiform cupule, or perianth tube rarely completely surrounding fruit.

TYPE GENUS: *Laurus* L.

Primarily a tropical family of about 50 genera and 1200 species. *Cassytha*, a hemiparasitic herbaceous climbing plant, is considered by some authors to constitute a monotypic separate family, but is indistinguishable in flower and fruit characteristics. The genera are poorly defined and keys are difficult to construct for the available specimens. The limits to species are not clear, either to ranges or morphological variation. The sexual condition of individual plants is not fully understood, and field observations are needed of individual plants, species and genera in flower and fruit, along with collections in various stages from single plants.

References to the conflicting literature will be found in R. A. Howard, J. Arnold Arbor. 62: 45-62. 1981.

KEY TO THE GENERA

1. Parasitic leafless herbaceous twining plants with filiform stems *Cassytha*
1. Leafy trees and shrubs.
 2. Anthers of fertile stamens 2-celled.
 3. Fertile stamens 3; leaves usually < 3 cm wide; fruiting perianth woody, strongly 1- or 2-rimmed *Licaria*
 3. Fertile stamens 9; leaves generally > 3 cm wide; fruiting perianth not conspicuously rimmed.
 4. Plants dioecious; leaves silky pubescent below, basal venation plinerved or strongly arcuate; fruiting perianth cupular, smooth margined .. *Endlicheria*
 4. Plants with bisexual flowers; leaves glabrous below.
 5. Fourth series of androecium present as sagittate staminodes; calyx deciduous in fruit, pedicel terete *Beilschmiedia*
 5. Fourth series of androecium absent; fruiting perianth cupular, often toothed and surrounding berry in development *Aniba*
 2. Anthers of fertile stamens 4-celled.
 6. Stamines large, cordate or sagittate; leaves plinerved or pinnately veined; fruiting perianth not brightly colored, lobes present or wanting.
 7. Perianth lobes in flower equal; leaves commonly plinerved and strongly aromatic; fruiting pedicel cylindric below commonly strongly recurved lobes *Cinnamomum*
 7. Perianth lobes unequal in flower; leaves pinnately veined, not noticeably aromatic; fruiting pedicel cylindric, lobes small, persistent or wanting *Persea*
 6. Stamines small, inconspicuous or wanting; leaves pinnately veined; fruiting perianth generally brightly colored when fresh, cyathiform to pateriform,

generally smooth margined, rarely toothed, rimmed, or with recurved marginal lobes *Ocotea*

ANIBA Aublet

Aniba Aublet, Hist. Pl. Guiane 1: 327, t. 126. 1775.

Large trees. Leaves alternate or subverticillate on sympodial shoots, short petiolate, coriaceous, glabrous. Panicles axillary or terminal on short thin shoots above leaves, with basal bracts readily caducous. Flowers perfect, usually tomentellous; tube obconical or urceolate; tepals equal, acute; fertile stamens 9, 2-celled, outer 2 rows slightly incurved, introrse, filaments hirsute, inner third row with erect stamens, extrorse, filaments hirsute with large sessile subglobose glands, valves completely or partly opening from base to apex; ovary ellipsoid, glabrous, style cylindric, stigma minute. Fruiting cupules at first enlarging and surrounding young fruit, often dentate at margin, when mature subhemispheric to obconic with short, thick, distinct pedicel, margin smooth, outer surface often warty, surrounding basal 1/3 of ellipsoid berry.

TYPE SPECIES: *Aniba guianensis* Aublet.

A genus of 41 species of South America and the West Indies. For more information see A. J. G. H. Kostermans, Recueil Trav. Bot. Néerl. 35: 834-931. 1938; and K. Kubitzki and S. Renner, Flora Neotropica Monograph 31: 1-125. 1982.

KEY TO THE SPECIES

Leaves subverticillate on sympodial shoots, oblanceolate to obovate-elliptic, 15-40 x 4-12 cm; petioles 3-10 mm thick *A. bracteata*
Leaves alternate, elliptic to elliptic-ovate, 8-11 x 4.5-5 cm; petioles 1-2 mm thick *A. ramageana*

Aniba bracteata (Nees) Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 66, t. 3, f. 32. 1889. FIGURE 95.

Basionym: *Aydendron bracteatum* Nees, Syst. Laur. 256. 1836.

Type: St. Vincent, Hb. Schott & Arnott (B).

Syn.: *Oreodaphne parviflora* Griseb., Syst. Veg. Karaiben 71, no. 583. 1857, not (Sw.)

Nees, 1836. (Type: Guadeloupe, *Duchassaing ms. 1852* (holotype, GOET; isotype, K).)

Aydendron argenteum Griseb., Fl. Brit. W. Indian Is. 285. 1860. (Type: Dominica, *Imray 365* (holotype, GOET; isotype, K).)

Aydendron verticillatum Meissner in DC., Prodr. 15(1): 91. 1864. (Type: St. Vincent, *Guilding s.n.* (K).)

Goeppertia argentea (Griseb.) Meissner in DC., Prodr. 15(1): 174. 1864.

Goeppertia argentea (Griseb.) Meissner var. *l'herminieri* Meissner in DC., Prodr. 15(1): 174. 1864. (Type: Guadeloupe, *l'Herminier s.n.* (G-DC).)

Aniba bracteata (Nees) Mez var. *l'herminieri* (Meissner) Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 67. 1889.



FIGURE 95. *Aniba bracteata*, x 0.65.

Tree to 15 m tall. Leaves subverticillate at ends of sympodial branches; petioles stout, often 6-8 mm thick, 1-1.5 cm long; blades oblanceolate to obovate-elliptic, 15-25 (-40) x 4-7 (-12) cm, subcoriaceous, glabrous, secondary veins 10 to 17, narrowed below middle, base rounded, rarely cuneate, apex acute to long acuminate. Panicles on terminal shoot, to 18 cm long, rusty, tomentellous. Tepals 2-2.5 mm long, tomentellous inside; filaments hirsute; ovary glabrous. Cupules subhemispherical, to 1.3 cm high, 1.5 cm in diameter, rusty, verrucose outside; berry ellipsoid, to 2.2 cm long, 1.2 cm in diameter.

GENERAL DISTRIBUTION: Puerto Rico and the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Red sweetwood, bois jaune, bois-la-colique, laurier isabelle, laurier rouge, laurier jaune.

Aniba ramageana Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 494. 1889.

Type: Dominica, 8 Sept. 1888, *Ramage s.n.* (B, presumed destroyed; neotype, BM).

Tree to 16 m tall; branches glabrous, buds sericeous-tomentellous. Leaves alternate; petioles 1-2 mm thick, 8 mm long; blades ovate-elliptic to elliptic, 6-11 x 3.5-5.5 cm, coriaceous, glabrous, secondary veins 7 to 9, base acute, apex broadly acuminate. Panicles to 6 cm long, tomentellous. Tepals 3 mm long, tube densely sericeous inside; filaments hirsute; ovary glabrous. Cupules subhemispheric to obconic in fruit, 1 cm high, 1.5 cm in diameter, merging into a thick obconic pedicel; berry ellipsoid, to 4 cm long.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!.

COMMON NAME: Laurier falaise.

BEILSCHMIEDIA Nees

Beilschmiedia Nees in Wallich, Pl. Asiat. Rar. 2: 61, 69. 1831.

Syn.: *Hufelandia* Nees, Hufeland. Ill. 11, t. 1, 2. 1833. (Type species: *Laurus pendula* Sw. = *Hufelandia pendula* (Sw.) Nees.)

Trees. Leaves alternate, petiolate, blades coriaceous, penni-nerved. Inflorescences axillary or subterminal, paniculate. Flowers perfect, perianth 6-parted, lobes subequal, caducous in fruit; fertile stamens 9, outer 6 with large ovate anthers, 2-celled, introrse, connectives protruding, filaments variable in length, glandless; inner 3 extrorse, biglandular; staminodes of row 4 large, short stalked or sessile; ovary subglobose, glabrous. Fruiting pedicels cylindrical, not forming cupule; berry ellipsoid, obtuse, succulent.

TYPE SPECIES: *Beilschmiedia roxburghiana* Nees.

A pantropical genus of about 200 species. For more information, see A. J. G. H. Kostermans, Recueil Trav. Bot. Néerl. 35: 834-931. 1938.

Beilschmiedia pendula (Sw.) Hemsley, Biol. Cent.-Amer., Bot. 3: 70. 1882. FIGURE 96.

Basionym: *Laurus pendula* Sw., Prodr. 65. 1788.

Lectotype: Jamaica, Swartz s.n. (s; isoelectotype, BM).

Syn.: *Hufelandia pendula* (Sw.) Nees, Hufeland. III. 22. 1833.

Tree to 20 m tall; twigs minutely densely brown strigillose. Leaves with petioles 1-2 cm long; blades elliptic to elliptic-obovate, 4.5-15 (-18.5) x 2-7 (-8.5) cm, glaucous or sparsely pubescent below when young, glabrate and finely reticulate veined on both surfaces, chartaceous or subcoriaceous, base cuneate, apex obtusely short-acuminate. Panicles axillary, laxly many-flowered. Tepals elliptic to oval. Fruiting pedicels scarcely thickened, 1-1.5 mm in diameter; berry 2.7-4 cm long, 1.3-1.5 cm in diameter, black.

GENERAL DISTRIBUTION: Greater Antilles, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique, St. Lucia!, St. Vincent!.

COMMON NAMES: Zaboca, sweetwood, red sweetwood, laurier madame, isabella blanc, laurier rouge.



FIGURE 96 (left). *Beilschmiedia pendula*, x 0.4. FIGURE 97 (right). *Cassytha filiformis*, x 0.4.

CASSYTHA L.

Cassytha L., Sp. Pl. 1: 35. 1753.

Parasitic vines; stems yellow-orange to slightly greenish. Leaves none or reduced to scales. Inflorescences spicate or reduced to subcapitate form. Flowers perfect; tepals 6 in 2 series, the outer smaller; fertile stamens in 3 whorls, outer 2 introrse, eglandular, third extrorse with 2 basal glands, fourth whorl staminodal, anthers 2-celled; ovary globose, becoming enclosed by enlarging base of perianth, lobes persistent. Fruits berry-like, fleshy.

TYPE SPECIES: *Cassytha filiformis* L.

Cosmopolitan in tropical areas, coastal or xeric. About 20 species. Treated by Fournet (1978) and others as a monogeneric family.

Cassytha filiformis L., Sp. Pl. 1: 35. 1753.

FIGURE 97.

Type: India, LINN 519.1.

Syn.: *Cassytha americana* Nees in Wallich, Pl. Asiat. Rar. 2: 69. 1831. (Syntypes: Jacq., Select. Stirp. Amer. Hist. 115, t. 79; Hook., Exot. Fl., t. 167; Pluk., Almagestum 126, Phytographia t. 172, f. 2.)

Slender-stemmed twining herbaceous vine adhering to host by haustoria, yellow-orange or yellowish-green, often forming dense mats. Leaves reduced to scales 1-2 mm long or wanting. Inflorescences spicate or reduced to glomerules of a few flowers. Tepals white, 2 mm broad, inner tepals larger than outer. Fruits globose, 5-7 mm in diameter, white, seed 1, large.

GENERAL DISTRIBUTION: Cosmopolitan in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda, Antigua!, Guadeloupe!, Marie Galante!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines, Grenada!, Barbados!.

COMMON NAMES: Corde à violon, liane-fisella, liane-amitié, vermicella, liane sans fin, love vine, kod-a-vyélonj, lyenn san piat.

CINNAMOMUM Schaeffer

Cinnamomum Schaeffer, Bot. Exped. 74. 1760, nom. cons.

Evergreen trees or shrubs; foliage commonly aromatic when crushed. Leaves alternate, often aggregated near ends of branches, or opposite or subopposite. Inflorescences axillary, paniculate. Flowers bisexual; perianth of 6 equal tepals in 2 whorls; fertile stamens 9 in 3 whorls, anthers usually 4-celled, first and second whorls introrse, eglandular, third whorl extrorse or latrorse with stipitate glands, filaments short, glabrous or pubescent, fourth whorl staminodal; style short or long with stigma minute, peltate. Fruiting pedicels swollen, clavate, enlarged at persistent woody perianth lobes; fruit a berry.

LECTOTYPE SPECIES: *Laurus cinnamomum* L. = *Cinnamomum verum* Bercht. & Presl.

A genus of about 250 species in Eastern and Southeastern Asia. For more information, see A. J. G. H. Kostermans, Reinwardtia 6: 17-24. 1961.

CULTIVATED TAXA

Cinnamomum brevipodium Miq. was cultivated in the Botanic Garden, Dominica (Hodge 946, GH).

Cinnamomum camphora (L.) Nees & Eberm. was cultivated in the botanic gardens on Guadeloupe and Dominica.

KEY TO THE SPECIES

1. Leaves opposite or subopposite, coriaceous, 3-plinerved to near apex *C. verum*
1. Leaves alternate; basal pair of veins plinerved and arcuate to middle, above middle pinnately veined.
 2. Blades chartaceous, green on drying, apex narrowly acuminate *C. elongatum*
 2. Blades coriaceous, turning dark on drying, apex short and abruptly acuminate, often plicate or folded, at least near base *C. falcatum*

Cinnamomum elongatum (Nees) Kosterm., Reinwardtia 6: 21. 1961.

Basionym: *Phoebe elongata* Nees, Syst. Laur. 116. 1836, emend. Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 203. 1889.

Syntypes: India occidentalis, *Vahl s.n.* (Hb. Willd. 7780, fol. 1); Andes, Peru, *Poeppig 1311*.

Syn.: *Phoebe cubensis* Nees, Syst. Laur. 120. 1836. (Type: Cuba, *Poeppig s.n.* (B).)
Cinnamomum cubensis (Nees) Kosterm., Reinwardtia 6: 21. 1961.

Tree, 10-20 m tall; branches yellowish gray, puberulous. Leaves with petioles to 12 mm long; blades ovate-lanceolate to elliptic lanceolate, 5-19 x 2-6 cm, chartaceous, glabrous above, pilose to subglabrate below, basal veins plicate-arcuate, midblade and above arcuate-pinnate, base rounded or cuneate, apex acuminate. Panicles pyramidal, glabrous, generally shorter than leaves. Flowers glabrous. Fruiting peduncles and cupules obconic, to 1.4 cm long; berry ellipsoid, 13-15 mm long, 7 mm in diameter, black.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico, Trinidad, Tobago.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius, Montserrat!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Pitch-pine sweetwood, laurier-mabonne, laurier cane.

NOTES: Inflorescences are often abnormal, elongated, few-flowered, and with conspicuous bracts.

Cinnamomum falcatum (Mez) R. Howard, J. Arnold Arbor. 62: 46. 1981.

Basionym: *Ocotea falcata* Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 388. 1889.
Type: Guadeloupe, *Duchassaing s.n.* (B, presumed destroyed).

Syn.: *Phoebe falcata* (Mez) Mez in Urban, Symb. Antill. 2: 251. 1900, not Miq., 1858.
Cinnamomum falcatifolium Kosterm., Reinwardtia 6: 21. 1961, nomen novum.

Tree; branches glabrous. Leaves with petioles 6-10 mm long; blades ovate-lanceolate to elliptic-lanceolate, 6-12 x 2.5-4 cm, coriaceous, glabrous, basal veins 3-pli-arcuate, midblade and above pinnate veined, base rounded or shortly cuneate, apex acuminate, midrib commonly curved and blade often folded or plicate only at or near base. Panicles with peduncle 2.5-5 cm long, glabrous. Perianth lobes subequal, papillose inside, filaments pilose. Fruiting peduncles clavate, 1 cm long, perianth lobes reflexed, acute; berry ellipsoid-globose, 1.5-2 cm long, 1 cm in diameter.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius!, Guadeloupe!, Martinique!, St. Vincent!.

COMMON NAMES: Bois-doux Desbonnes, bois-doux Mabonne, laurier-Mabonne.

Cinnamomum verum Bercht. & Presl, Prir. Rostlin. 2: 36, 37-44, t. 7. 1825. FIGURE 98.

Basionym: *Laurus cinnamomum* L., Sp. Pl. 1: 369. 1753.

Type: Ceylon; not designated.

Syn.: *Cinnamomum zeylanicum* Blume, Bijdr. 568. 1826. (Type: Java.)

Tree to 20 m tall, d.b.h. 1 m; branches and foliage aromatic when crushed; stems glabrous. Leaves with petioles 1-1.5 cm long; blades ovate, oblong or oblong-ovate, 5-18 x 2.5-8 cm, coriaceous, glabrous, strongly 3- (to 5-) plinerved, base cuneate to rounded, apex obtuse or subacute. Panicles solitary or clustered in axils of terminal leaves, often longer than leaves. Flowers whitish-yellow, sericeous, lobes oblong-ovate, bluntly acuminate. Fruiting perianth cupular, strongly 6- to 8-lobed, lobes acute; berry 1-1.2 cm long, 0.7 cm in diameter.

GENERAL DISTRIBUTION: Native of Ceylon, introduced and cultivated in tropical countries.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada.

COMMON NAMES: Cinnamomum, cannellier, cannelle, spice, kannèl, pied-cannella.

NOTES: Cultivated and persisting after cultivation or escaped. The only fruiting specimens seen are from St. Lucia.

ENDLICHERIA Nees

Endlicheria Nees, Linnaea 8: 37. 1833, nom. cons.

Dioecious trees. Leaves alternate, coriaceous, 3- or 5-plinerved. Panicles axillary or subterminal. Tepals 6, usually equal, reflexed after anthesis; staminate flowers with 9 fertile stamens in 3 rows, outer 2 rows with anthers 2-celled,



FIGURE 98 (left). *Cinnamomum verum*, x 0.35. FIGURE 99 (right). *Endlicheria sericea*, x 0.35.

introrse, glandless filaments, inner row with anthers 2-celled, extrorse, filaments with basal glands, fourth row of stamens wanting, pistil rudimentary, sterile; pistillate flowers slightly larger than staminate but fewer in number in smaller panicles, stamens similar but sterile, ovary glabrous, style short, thick, stigma discoid. Fruiting cupules subhemispherical, shallow, simple margined with stout pedicel; berry ellipsoid.

TYPE SPECIES: *Cryptocarya hirsuta* Schott = *Endlicheria hirsuta* (Schott) Nees, type cons.

A genus of 55 species with a single species in the West Indies. For more information, see A. J. G. H. Kostermans, *Recueil Trav. Bot. Néerl.* **34**: 500-609. 1937.

Endlicheria sericea Nees, *Linnaea* **8**: 38. 1833.

FIGURE 99.

Type: Sieber, Fl. Ins. Trinit. 175 (B), but probably from Guadeloupe.

Syn.: *Goeppertia sericea* (Nees) Nees, *Syst. Laur.* 369. 1836.

Goeppertia sericea (Nees) Nees var. *opaca* Meissner in DC., *Prodr.* **15**(1): 174. 1864. (Type: Dominica, Imray 451 (K).)

Aydedron sericeum (Nees) Griseb., Fl. Brit. W. Indian Is. 284. 1860.

Endlicheria guadalupensis Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 124. 1889.

(Type: Guadeloupe, *Duchassaing s.n.* (B).)

Tree to 35 m tall; branches subsericeous-tomentose, becoming glabrescent. Leaves with petioles to 2 cm long; blades obovate, obovate-elliptic to elliptic, 9-17 (-36) x 4-8 (-13) cm, chartaceous-coriaceous, venation pinnate or with basal 2 pairs of veins strongly plinerved-arcuate, secondary venation reticulate on both surfaces, short sericeous below, appearing silky, base cuneate to rounded, apex long acuminate. Panicles axillary, dense, 7-15 cm long, the pistillate shorter. Flowers yellow, to 5.6 mm wide, obconic at base, sericeous-hirsute; tepals equal, fleshy, elliptic; filaments hirsute; pistil rudimentary in male flowers; ovary globose-ovoid, 1.25 mm long in pistillate flowers, style short, stigma discoid. Cupules hemispheric, 1 cm high, 1.5 cm in diameter, tepals more or less persistent or cupule entire; berry ellipsoid, 2.5 cm long, 1.3 cm in diameter, mucronulate.

GENERAL DISTRIBUTION: Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante, Dominica, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Bois doux blanc, cayali, cayari, bois doux-grandes feuille, laurier caille, bois-montagne, laurier-grand bois, laurier canelle, laurier gris, laurier isabelle, bois marbré, laurier pété, marbuy, sweetwood, laurier faire, laurier vache.

LICARIA Aublet

Licaria Aublet, Hist. Pl. Guiane. 1: 313, t. 121. 1775.

Syn.: *Misanteca* Cham. & Schldl., Linnaea 6: 367. 1831. (Type species: *Misanteca capitata* Cham. & Schldl.)

Acroclidium Nees & C. Martius, Hufeland. III. 13. 1833. (Type species: *Acroclidium brasiliensis* Nees & C. Martius.)

Trees. Leaves alternate or rarely opposite, coriaceous, pinnately veined. Inflorescences paniculate, axillary or seemingly terminal. Flowers perfect; tepals 6, equal or nearly so, caducous; 6 stamens of outer 2 rows modified into foliaceous scale-like staminodes, third row of 3 stamens fertile, with basal glands, anthers 2-celled, extrorse or rarely introrse, fourth row wanting; ovary included in perianth tube. Fruiting cupules clearly or obscurely double margined; berry ellipsoid to subglobose, largely to completely included in cupule.

TYPE SPECIES: *Licaria guianensis* Aublet.

A genus of about 45 species primarily of Central and tropical South America. For more information, see A. J. G. H. Kostermans, Recueil Trav. Bot. Néerl. 34: 500-609. 1937.

KEY TO THE SPECIES

1. Stamens united in a tube, staminodes of 2 outer cycles wanting; leaves ovate-elliptic 8-12 x 3.5-5.5 cm; cupules 9-12 mm high, 12-18 mm dia., clearly double margined *L. triandra*
1. Stamens free, staminodes of 2 outer rows present or sometimes wanting.
 2. Leaves areolate-reticulate on both surfaces, laxly tomentose beneath; cupules 4 mm high, 8 mm dia., clearly double margined *L. salicifolia*
 2. Leaves smooth above, glabrescent below; cupules 15 mm high, 22 mm dia., obscurely double margined *L. sericea*

Licaria salicifolia (Sw.) Kosterm., Recueil Trav. Bot. Néerl. **34**: 597. 1937. FIGURE 100.

Basionym: *Laurus salicifolia* Sw., Fl. Ind. Occid. **2**: 709. 1800.

Type: Ind. Occid., Swartz s.n. (Hb. Mus. Banks, BM).

Syn.: *Acroclididium salicifolium* (Sw.) Griseb., Fl. Brit. W. Indian Is. 280. 1860.

Tree to 15 m tall; branches ferruginous tomentulose. Leaves with petioles 5-10 mm long; blades oblong-lanceolate or lanceolate, 3.5-15 x 1-4.5 cm, areolate-reticulate veined above, often pubescent below, base cuneate, apex acute. Inflorescence rachis tomentulose. Perianth lobes ovate, 1-1.3 mm long. Cupules 4 mm high, 8 mm in diameter; berry ellipsoid, 12-15 mm long, 6-8 mm in diameter.

GENERAL DISTRIBUTION: Puerto Rico and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Montserrat, Guadeloupe, Marie Galante!, Martinique.

COMMON NAMES: Bois-fourmi, bois-chique.

Licaria sericea (Griseb.) Kosterm., Recueil Trav. Bot. Néerl. **34**: 597. 1937.

Basionym: *Acroclididium sericeum* Griseb., Fl. Brit. W. Indian Is. 280. 1860.

Type: Dominica, Imray s.n. (K).

Syn.: *Acroclididium dominicense* Meissner in DC., Prodr. **15**(1): 86. 1864. (Type: Dominica, Imray s.n. (K, not found).)

Tree to 20 m tall. Leaves with petioles slender 6-8 mm long; blades lanceolate, 6.5-12 x 2-3 cm, coriaceous, sericeous below, base tapering, apex acuminate. Panicles racemiform, shorter than leaves. Perianth to 1.8 mm, inside with sericeous bristles. Cupules 15 mm high, 22 mm in diameter, warty-lobed below, obscurely double margined; berry subglobose, 15 mm in diameter.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

COMMON NAME: Bois à pain.

Licaria triandra (Sw.) Kosterm., Recueil Trav. Bot. Néerl. **34**: 588. 1937.

Basionym: *Laurus triandra* Sw., Prodr. 65. 1788.

Type: Jamaica, Swartz s.n. (holotype, s; isotype, BM).

Syn.: *Misantea triandra* (Sw.) Mez, Jahrb. Königl. Bot. Gart. Berlin **5**: 103. 1889.



FIGURE 100. *Licaria salicifolia*, x 0.6.

Acrodiclidium triandrum (Sw.) Lundell, Contr. Univ. Michigan Herb. 7: 12. 1942.

Tree to 20 m tall. Leaves with petioles ovate-elliptic; blades oblong-elliptic, elliptic or oval, 5-13 x 1.8-5.5 cm, broad, coriaceous, shiny and glabrous both surfaces, base acute or rounded and slightly cuneate-decurrent, apex often abruptly acuminate with an obtuse point. Perianth lobes 1.8 mm, obtuse. Cupules 9-12 mm high, 12-18 mm in diameter, red when mature; berry oblong-ovoid, 2-2.5 cm long, 1.2-1.4 cm in diameter.

GENERAL DISTRIBUTION: Florida, Greater Antilles and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Martinique!.

COMMON NAME: Bois-fourmi.

OCOTEA Aublet

Ocotea Aublet, Hist. Pl. Guiane 2: 780. 1775.

Syn.: *Nectandra* Rolander ex Rottb., Acta Lit. Univ. Hafn. 1: 79. 1778, nom. cons. (Type species: *Nectandra sanguinea* Rolander ex Rottb.)

Trees or shrubs. Leaves petiolate, alternate, membranaceous to coriaceous, pinnately veined. Inflorescences axillary, paniculate. Flowers perfect or polygamous, or plant monoecious or dioecious; perianth 6-parted, lobes mostly equal, erect or reflexed at anthesis, yellowish white persistent or caducous; hypanthium small, slightly expanded in fruit; perfect stamens 9 in 3 series, outer 2 series eglandular, anthers introrse, 4-celled, third series extrorse, filaments with paired basal glands, fourth series staminodal, much reduced or wanting; pistil globular, style short, glabrous or pubescent. Fruit a berry, oblong to globose, seated on or enclosed in expanded pedicel; pedicel crateriform to pateriform. In some flowers all stamens are reduced in size and are nonfunctional and in others the pistil is sterile and rudimentary.

TYPE SPECIES: *Ocotea guianensis* Aublet.

Nectandra and *Ocotea* are regarded by some workers as distinct genera separated clearly or poorly by characters of fertility of the flowers, attitude of the tepals in anthesis and arrangement of the anther sacs of the third series in an arc rather than being subsuperposed. The number of species to be recognized in the combined genera is variously estimated between 500 and 2000. The species are often vaguely defined on the basis of leaf characters of dried specimens. The geographic limits of the species and even the genus or genera are uncertain. Field studies of all aspects of the floral biology of this group are desired. Several species are known only from the original collection, and most species have not been collected in flower and fruit from the same plant or area. Hopefully this treatment can be revised by others.

KEY TO THE SPECIES

1. Inflorescence axis and perianth glabrous.
2. Leaves coriaceous, elliptic-oblong, apex obtuse to short acuminate; fruiting cupule

- clavate at base, toothed on margin *O. imrayana*
- 2. Leaves membranaceous to chartaceous; fruiting cupule cyathiform to pateriform, margin even.
 - 3. Fruit ellipsoid, 2-4 cm long, cupule tapering at base; leaf apex acute, base obtuse or rounded *O. dominicana*
 - 3. Fruit oblong, 1-1.5 cm long, cupule hemispheric, abruptly contracted to terete pedicel; leaf apex acuminate, base cuneate *O. cernua*
- 1. Inflorescence axis and perianth pubescent.
 - 4. Leaves persistently pubescent below; flowers large, to 1 cm across.
 - 5. Panicles broadly branched from base; pubescence white; orifice of cupule 3 cm dia., 1 cm deep; berry 5 cm long *O. jacquini*
 - 5. Panicles stalked, subcorymbose; pubescence golden; orifice of cupule 1 cm dia., 5 mm deep; berry to 1.5 cm long *O. krugii*
 - 4. Leaves glabrous or glabrate when mature; flowers < 7 mm wide.
 - 6. Inflorescences stalked, noticeably pedunculate.
 - 7. Leaf apex caudate acuminate; ovary pubescent *O. l'herminieri*
 - 7. Leaf apex acute; ovary glabrous.
 - 8. Leaves broadly elliptic, to 18 x 9 cm, cuneate at base; inflorescences subcorymbose; domatia common in vein axils; cupule pateriform *O. martinicensis*
 - 8. Leaves oblong, much < 18 cm long; inflorescences paniculate.
 - 9. Leaf base acute; domatia present; cupules pateriform to discoid, 5-6 mm dia. *O. dussii*
 - 9. Leaf base rounded; domatia wanting; cupules hemispheric, cyathiform, 14 mm dia., 5 mm deep *O. alpina*
 - 6. Inflorescences branched from base.
 - 10. Leaves generally drying black.
 - 11. Leaves generally gall infected; petals glabrous within; cupules simple margined; pedicel clavate, commonly with corky galls or warts *O. leucoxydon*
 - 11. Leaves generally not gall infected; petals conspicuously pubescent within; cupules plane to recurved, double margined; abruptly constricted to pedicels and without corky warts *O. floribunda*
- 10. Leaves drying dull brown or green and shiny above.
 - 12. Leaf blades 6-9 cm long; primary veins weakly developed, generally with axillary domatia; cupules clavate to pedicel, partially surrounding berry *O. eggarsiana*
 - 12. Leaves > 10 cm, without domatia.
 - 13. Fruits globose; leaves with secondary veins impressed or adaxial surface flat; tertiary veins parallel; fruits commonly rugose, swollen and grotesque *O. membranacea*
 - 13. Fruits ellipsoid or rounded-oblong; veins prominent; veinlets prominent and reticulate.
 - 14. Leaves elliptic-lanceolate, concolorous with veins; inflorescence axis drying green or brown; cupules to 8 mm dia., shallow, 1-2 mm deep; fruits 10-24 mm long *O. patens*
 - 14. Leaves oblong-lanceolate, usually drying green with midrib and veins whitish or yellow; inflorescence axis drying bright red; cupules hemispheric, 4.5-6 mm dia., 2-3 mm deep; fruits 8-15 mm long *O. coriacea*

Ocotea alpina R. Howard, J. Arnold Arbor. **62**: 50, 51. 1981.

Type: Guadeloupe, *Dussé 3979* (holotype, NY).

Small tree to 3 m tall; dioecious; branchlets and buds sericeous pubescent. Leaves with petioles 8-13 mm long, sericeous to glabrate; blades oblong, elliptic to ovate-lanceolate, 10-12 x 3.5-5 cm, subcoriaceous, glabrous on both surfaces, primary veins 5 or 6 pairs, arcuate, minutely reticulate between veins, base rounded, apex acute to attenuate. Panicles pedunculate, shorter than leaves; rachis and perianth sericeous pubescent. Flowers racemose or clustered on branches. Fruiting cupule cyathiform, pedicels cylindrical, abruptly flaring; cupule cyathiform, orifice 14 mm in diameter, cup to 5 mm deep; berry ellipsoid, 2.5 cm long, 1.2 cm in diameter, black.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis!, Guadeloupe!, Martinique!.

COMMON NAMES: Sweetwood, laurier fine.

NOTES: A species of windswept ridges and elfin forests.

Ocotea cernua (Nees) Mez, Mitt. Bot. Vereins Kreis Freiburg **47-48**: 422. 1888.

Basionym: *Oreodaphne cernua* Nees, Syst. Laur. 424. 1836.

Syntypes: Martinique, *Sieber 106* (G), 384, 395.

Syn.: *Oreodaphne sieberi* Meissner in DC., Prodr. **15**(1): 137. 1864. (Syntypes: Martinique, *Sieber 79*; Dominica, Guadalupe, Mexico, *Linden 1601, 1607* (K); Bahia, *Blanchet 1478*.)

Tree to 17 m tall; dioecious; branches glabrous. Leaves with petioles to 1 cm long, drying black; blades elliptic-oblong to elliptic-lanceolate or elliptic, 9-14 x 3-4.5 cm, subcoriaceous, glabrous, base rounded and shortly cuneate to petiole, apex usually caudate-acuminate to long acuminate. Panicles glabrous. Tepals 1.2-2 mm long; staminate flowers with slender aborted pistil; pistillate flowers with sterile stamens, functional pistil ellipsoid-globose. Fruiting pedicels to 7 mm long, red, terete below; cupule hemispherical, to 11 mm in diameter, 3-4 mm deep; berry ellipsoid, slightly apiculate, to 22 mm long, 12 mm in diameter, black.

GENERAL DISTRIBUTION: Southern Mexico and Central America, and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Laurier rivière, laurier petite feuille, laurier canelle, laurier fer, bois doux noir, bois negresse.

Ocotea coriacea (Sw.) Britton in Britton & Millsp., Bahama Fl. 143. 1920.

Basionym: *Laurus coriacea* Sw., Prodr. 65. 1788.

Type: Jamaica, *Swartz s.n.* (holotype, s).

Syn.: *Nectandra coriacea* (Sw.) Griseb., Fl. Brit. W. Indian Is. 281. 1860.

Nectandra coriacea forma *dubia* Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 461. 1889.
(Type: Martinique, *Hahn* 902 (holotype, B, presumed destroyed; isotypes, K, G).)

Tree to 12 m tall; young shoots slightly pubescent becoming glabrous. Leaves with petioles 5-15 mm long; blades oblong, oblong-lanceolate to ovate-elliptic, 6-15 x 2-5.5 cm, subcoriaceous, drying dark green and lustrous above, duller below, glabrous or nearly so, venation reticulate, conspicuous, base cuneate to rounded, apex acute to acuminate. Panicles clustered or branched from base, puberulous. Flowers perfect, perianth 5-6 mm in diameter. Fruiting pedicels enlarging into conical cupule; cupule 5-7 mm in diameter, 1-2 mm deep; berry subglobose to obovoid, 10-18 mm long, 7 mm in diameter.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, Lesser Antilles, northern South America, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Barbuda!, Antigua!, Saba, St. Eustatius!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

Ocotea dominicana (Meissner) R. Howard, J. Arnold Arbor. 62: 53. 1981.

Basionym: *Oreodaphne* ? *dominicana* Meissner in DC., Prodr. 15(1): 129. 1864.

Syntypes: Dominica, *Imray* 173, 213.

Syn.: *Nectandra dominicana* (Meissner) Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 399. 1889.

Tree to 15 m tall; dioecious; young branches strigose tomentose. Leaves with petioles to 3 cm long; blades oblong, elliptic to broadly ovate-lanceolate, 8.5-17.5 (-39) x 3-7 (-21) cm, coriaceous, glabrous, base acute to obtuse, apex rounded to bluntly acute. Panicles glabrous. Staminate flowers more numerous. Fruiting pedicels 1.5-3.0 cm long, tapering to base of cupule; cupule conical, rugose at base, about 15 mm in diameter, 4-6 mm deep, margin undulate or shallowly irregularly toothed; berry ellipsoid, to 4 cm long, 1.7 cm in diameter.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Laurier, laurier cyp, laurier blanc, laurier noir, laurier yaboca, laurier de rose, laurier de poivre, muscadier, bois-doux-muscade, laurier-gombo.

NOTES: Two classes of leaf sizes are evident in the specimens seen. The sterile shoots with larger leaves may represent adventitious shoots. Often these are accompanied by loose fruits and cupules, probably gathered from the ground. Smaller sized leaves are associated with inflorescences and flowers. Staminate inflorescences bear more flowers than do the pistillate plants.

Ocotea dussii Mez, Bull. Herb. Boissier 2, 5: 241. 1905.

Syntypes: Guadeloupe, *Duss* 3888, 4033, 4037.

Tree; dioecious; young branches and buds tan, sericeous-tomentose. Leaves with petioles to 7 mm long; blades elliptic to elliptic-lanceolate, 4-10 x 2-4 cm,

subcoriaceous, glabrous above, obscurely pilose in axils of lower veins, commonly with domatia, base acute or cuneate, apex short acuminate to acute. Panicles pedunculate, slightly longer than leaves, minutely pilose. Fruiting cupules conical at base, flat at apex, margin undulate to recurved; berry ellipsoid, to 2.5 cm long, 1.1 cm in diameter.

GENERAL DISTRIBUTION: Endemic to Guadeloupe.

NOTES: Description compiled from inadequate material.

Ocotea eggersiana Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 363. 1889.

Syntypes: Dominica, *Eggers* 657 (G), 988 (K); *Imray* 127, 147 (K), 327; Guadeloupe, *Duchassaing s.n.*, *l'Herminier s.n.* (G); Sta. Martha, *Ryan s.n.*

Syn.: *Ocotea eggersii* Duss, Fl. Phan. Antill. Franç. 302. 1897, sp. phalma.

Tree to 14-18 m tall; dioecious; branches ferruginous tomentellous. Leaves with petioles to 8 mm long; blades elliptic to elliptic-lanceolate, 6-9 x 2-5 cm, subcoriaceous, glabrous above, uniformly pinnate-veined, with barbellate domatia in axils of lower veins, base acute or cuneate, apex acuminate. Panicles branched from base, rachis and pedicels lightly sericeous. Fruiting cupules conical at base, rugose, orifice 5 mm wide, 5 mm deep; berry ovoid-ellipsoid, 12 mm long, 5 mm in diameter.

GENERAL DISTRIBUTION: Lesser Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Laurier caca, laurier fétide, laurier noir, peste à pou.

NOTES: Duss (Fl. Phan. Antill. Franç. 303. 1897) was the first to describe the fruit, which he reported to be deep blue, spherical, the size of a cherry and inserted in a truncate cupule. The true size and shape of the fruit remain uncertain.

Monstrous forms of this species are recognized in specimens from Guadeloupe and Grenada. The inflorescences are extended, diffuse, and leafy with the flowers in bracted clusters. The leaves may be larger than normal in such specimens.

Ocotea floribunda (Sw.) Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 325. 1889.

Basionym: *Laurus floribunda* Sw., Prodr. 65. 1788.

Type: Jamaica, *Swartz s.n.* (holotype, s).

Syn.: *Strychnodaphne floribunda* (Sw.) Griseb., Fl. Brit. W. Indian Is. 283. 1860.

Tree to 20 m tall; dioecious; young branches sparsely pubescent. Leaves with petioles to 1 cm long; blades elliptic-lanceolate, elliptic or obovate-elliptic, 5-14 x 2.5-5 cm, thinly coriaceous, generally glabrous, finely reticulate-veined on both surfaces, base rounded or acute, apex obtuse to short acuminate with obtuse point. Panicles branched from base, puberulent. Fruiting cupules flat, double margined, with reflexed, persistent lobes; berry subglobose to ellipsoid, 1-1.3 cm long.

GENERAL DISTRIBUTION: Greater Antilles, Lesser Antilles, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!.

COMMON NAMES: Sweet wood, laurier, pitchpine sweetwood, laurier ti fe.

Ocotea imrayana Mez, Jahrb. Königl. Bot. Gart. Berlin **5**: 239. 1889.

Syntypes: Dominica, *Imray* 149, 335 (K).

Syn.: *Ocotea clavigera* Mez, Jahrb. Königl. Bot. Gart. Berlin **5**: 239. 1889. (Syntypes: Guadeloupe, *l'Herminier s.n.*, *Duchassaing s.n.* (B, G).)

Tree; branches glabrous. Leaves with petioles 8-13 mm long; blades elliptic to elliptic-lanceolate, 13-25 x 4.5-8.5 cm, coriaceous, glabrous, turning black on drying, pinnately veined, base acute, apex acute or short acuminate. Panicles pyramidal, as long as leaves, glabrous. Flowers perfect. Fruiting pedicels long attenuate, 2-4.5 cm long, tapering directly to cupule; cupule 1.5 cm in diameter, margin triangular-dentate; berry ellipsoid, 3-4.5 cm long, 1-1.5 cm in diameter.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Laurier gombo, laurier muscade, laurier gland, bois doux muscade.

Ocotea jacquini (Meissner) Mez, Jahrb. Königl. Bot. Gart. Berlin **5**: 242. 1889.

Basionym: *Oreodaphne jacquini* Meissner in DC., Prodr. **15**(1): 114. 1864.

Type: Martinique, *Aquart s.n.* (s, w).

Syn.: *Laurus martinicensis* Jacq. Collectanea **2**: 109, t. 5, 1788, not *Ocotea martinicensis* Mez.

Nectandra martinicensis (Jacq.) Mez, Jahrb. Königl. Bot. Gart. Berlin **5**: 439. 1889 (as to name only).

Ocotea jacquiniana Mez ex Duss, Fl. Phan. Antill. Franç. 303. 1897, sphalma.

Tree to 15 m tall; branches grayish tomentellose becoming glabrate. Leaves with petioles to 12 mm long; blades ovate-elliptic to oblong or oblong-ovate, 16-18 x 5.5-9 cm, rigidly coriaceous, pinnately veined, short white strigose below, base obtuse, apex narrowly acuminate. Panicles subpyramidal, shorter than leaves, branched from base, rachis subtomentose. Flowers perfect; tepals broadly ovate, filaments densely ferruginose pilose. Fruiting pedicels elongated, tapering from conical base of cupule; cupule 1 cm deep, 2.8-3 cm in diameter; berry 5 cm long, 3 cm in diameter.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Lucia!.

COMMON NAMES: Laurier fine, laurier-gland, laurier formée.

Ocotea krugii (Mez) R. Howard, J. Arnold Arbor. **62**: 56. 1981.

Basionym: *Nectandra krugii* Mez, Jahrb. Königl. Bot. Gart. Berlin **5**: 422. 1889.

Syntypes: Dominica, *Imray 214* (K); Puerto Rico, *Sintenis 1984* (G, K), *4004* (G, K), *6450* (G, K).

Syn.: *Nectandra discolor* Griseb., Fl. Brit. W. Indian Is. 282. 1860, not Nees. (Type: Dominica, *Imray s.n.*)

Tree to 25 m tall; branchlets tomentose. Leaves with petioles 1-2.3 cm long, densely brown tomentose, rarely becoming glabrate; blades elliptic, elliptic-lanceolate, oblong-lanceolate to ovate-lanceolate, 11-25 x 3-9 cm, subcoriaceous, glabrous above, persistent tomentose on midrib and veins, base acute, rarely obtuse, apex acuminate. Panicles long pedunculate, shorter than leaves, rachis and buds villose. Flowers perfect; perianth lobes large, 4-4.5 mm long. Fruiting pedicels 1.5 cm long; cupule hemispherical, orifice 1-1.3 cm broad, 5 mm deep, abruptly constricted to pedicel; berry elliptic, 1.5-1.8 cm long, 9-10 mm in diameter.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Saba, St. Eustatius, Guadeloupe!, Dominica!.

COMMON NAMES: Black sweetwood, laurier caille, bois doux Desbonnes.

NOTES: Barneby and Allen in 1973 annotated many of these specimens as *Nectandra globosa* (Aublet) Mez. *Laurus globosa* Aublet is based on a Plumier reference and the unpublished manuscript, and is applicable to *Nectandra antillana* Meissner of the Greater Antilles.

Ocotea leucoxydon (Sw.) De Laness., Pl. Util. Col. Franç. 156. 1886.

Basionym: *Laurus leucoxydon* Sw., Prodr. 65. 1788.

Lectotype: Jamaica, *Swartz s.n.* (s).

Tree to 20 m tall; dioecious; branchlets appressed puberulent. Leaves with petioles to 1.5 cm long; blades oblong-lanceolate to elliptic or elliptic-ovate, 10-27 x 2.5-9 cm, coriaceous to chartaceous, commonly glabrate below, veins slightly impressed above base rounded to acute, apex acute, acuminate or obtuse. Panicles generally shorter than leaves, rusty pubescent. Perianth about 2 mm in diameter. Fruiting pedicels conical, 1-1.5 cm long; cupule 8 mm in diameter, 1-2 mm deep; berry globose, 8-10 mm in diameter.

GENERAL DISTRIBUTION: Greater & Lesser Antilles, Trinidad, Tobago.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Pumpkin sweetwood, laurier madame, bois doux courume, bois doux noir, bois doux jaune, bois doux pimenté, bois doux couronne, laurier mabre.

NOTES: Plants of this *Ocotea* are generally easily recognized by the abundance of gall-infested leaves. The fruiting pedicels also are covered with warty protuberances, brown, gray or whitish in color.

Ocotea l'herminieri Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 273. 1889.

Type: Guadeloupe, *l'Herminier s.n.* (syntypes, G, P).

Tree; branches ferrugineous-tomentellous. Leaves with petioles to 4 mm long, tomentose to glabrate; blades elliptic, 7 x 2.8 cm, coriaceous, ferruginose-tomentose when young, glabrous and shiny above when mature, veins pinnate, obscure above, laxly reticulate below, base acute, apex caudate-acuminate. Panicles pyramidal, multiflowered, ferruginose-tomentose, equalling leaves. Flowers perfect, 2 mm long; ovary sparsely pilose, ellipsoid. Fruits unknown.

GENERAL DISTRIBUTION: Known only from type collection.

NOTES: Photographs of two sheets in the Boissier herbarium are on file at the New York Botanical Garden. One sheet appears to have gall-infected flowers with extra bracts. The original description suggests monstrous material. The species may prove to be identical with *O. eggersiana* Mez.

Ocotea martinicensis Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 270. 1889.

Syntypes: Montserrat, *Ryan s.n.*; Jamaica, *Dancer s.n.* (K, G), *Wright s.n.* (K); Guadeloupe, *l'Herminier s.n.* (G), *de Ponthieu s.n.*; Dominica, *Imray 135* (K), 270 (K); Martinique, *Hahn 976, 985, 991* (K), 1448 (G), *Terasson 52*.

Tree to 12 m tall; twigs minutely tomentellous. Leaves with petioles to 1.5 cm long; blades elliptic to oblong, 13.5-20 x 7-9 cm, subcoriaceous, glabrous above, barbellate in axils below at domatia, base acute to cuneate or decurrent on petiole, apex short acuminate or acute. Panicles subcorymbose, shorter than leaves; pedicels and buds grayish-tomentellous. Flowers perfect. Cupules red, subpateriform, conical or attenuate to pedicel; berry ellipsoid, to 2.5 cm long, 2.5 cm in diameter.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Montserrat, Guadeloupe!, Dominica, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Laurier, bois doux cabrit, laurier racine, bois montagne, laurier mangue.

NOTES: Beard described this tree in Grenada as often with stilt roots. The common name "laurier bord de mer" on a sheet of *Duss 234* from Martinique seems inappropriate. No locality is given and all other collections of this species are from inland and mountain areas.

Mez attributed this species to Jamaica on the basis of Dancer and Wright collections. Adams (1972) reported that the record was "Not confirmed by recent collections."

Ocotea membranacea (Sw.) R. Howard, J. Arnold Arbor. 62: 59. 1981.

FIGURE 102.

Basionym: *Laurus membranacea* Sw., Prodr. 65. 1788.

Lectotype: Jamaica, *Swartz s.n.* (S).

Syn.: *Nectandra membranacea* (Sw.) Griseb., Fl. Brit. W. Indian Is. 282. 1860.

Oreodaphne coriacea Nees emend. Griseb., Fl. Brit. W. Indian Is. 284. 1860. (Type: Dominica, *Imray s.n.*)

Tree to 20 m tall; branches ferruginous-strigillose. Leaves with petioles 5-15 mm long; blades mostly ovate-lanceolate to oblong-lanceolate or elliptic, 10-20 x 2-8 cm, thinly coriaceous, dull when dry, slightly pubescent on veins below, becoming glabrous, base acute or cuneate often slightly asymmetrical, apex long attenuate to subcaudate-acuminate. Panicle branches slightly strigillose. Flowers polygamous, perianth yellowish white. Fruiting pedicels thick, to 1 cm before flaring to cupule; cupule 5-6 mm in diameter at orifice, margin entire; berry globose, 1.0-1.3 cm in diameter, black.

GENERAL DISTRIBUTION: Greater and Lesser Antilles, Trinidad and Tobago.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.

COMMON NAMES: Bois doux, bois chypre, laurier neglesse, laurier noir, laurier isabelle, laurier meuble, laurier doux, laurier caca, sweetwood, laurier go wrenn.

NOTES: Fruits of this taxon are frequently infected by galls or fungi, and become large, rugose, spongy and bright red when fresh.



FIGURE 101 (left). *Persea urbaniana*, x 0.35. FIGURE 102 (right). *Ocotea membranacea*, x 0.35.

Ocotea patens (Sw.) Nees, Hufeland. Ill. 10. 1833.

Basionym: *Laurus patens* Sw., Prodr. 65. 1788.

Type: Jamaica, Swartz s.n. (holotype, S; isotype, BM).

Syn.: *Nectandra patens* (Sw.) Griseb., Fl. Brit. W. Indian Is. 281. 1860.

Shrub or tree to 18 m tall; young branches puberulent. Leaves with petioles 3-10 mm long, puberulent; blades elliptic-lanceolate, ovate or oval, 7-20 x 3-8 cm, glabrous on both surfaces except occasional tufts of hairs in leaf axils on lower surface, venation prominent, coarsely reticulate on both surfaces, base acute or rounded, apex acute to acuminate. Panicles branched from base, puberulous. Cupules shallow, flaring from pedicels, red; berry oblong-ellipsoid, 2-2.5 cm long, black.

GENERAL DISTRIBUTION: Greater and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Sweetwood, laurier gros graine.

PERSEA Miller

Persea Miller, Gard. Dict. abr. ed. 4. 1754, nom. cons.

Trees. Leaves alternate, petiolate; blades chartaceous to subcoriaceous, pinnerved. Panicles subterminal, initially enclosed in large perulate terminal bud; basal scales caducous. Flowers perfect, tepals 6 in 2 whorls, outer shorter; perianth tube short; fertile stamens usually 9, filaments slender, outer 2 whorls with anthers introrse, 4-celled, filaments glandless, third whorl with anthers extrorse, filaments with basal glands, fourth whorl of sagittate hastate stamens on long filaments; style slender. Fruit a berry; pedicel naked or tepals small and reflexed.

TYPE SPECIES: *Persea americana* Miller.

A genus of about 150 species, 81 in the New World tropics. For more information see L. Kopp, Mem. New York Bot. Gard. **14**: 1-120. 1966.

KEY TO THE SPECIES

- Perianth segments reflexed at anthesis, tepals pubescent on both surfaces; cultivated or persistent trees; fruit 5 cm or larger *P. americana*
Perianth segments erect at anthesis, tepals glabrous on inner surface; forest trees, fruits globose, < 2 cm dia. *P. urbaniana*

Persea americana Miller, Gard. Dict. ed. 8. 1768.

Lectotype: Clusius, Rar. Pl. Hist. **1**: 2. 1601.

Syn.: *Laurus persea* L., Sp. Pl. **1**: 370. 1753. (Type: Clusius, Rar. Pl. Hist. **1**: 2.)

Persea gratissima Gaertner f. in Gaertner, Fruct. Sem. Pl. **3**: 222, t. 221. 1807.
(Type: Gaertner's plate.)

Tree to 40 m tall; branchlets pubescent, terminal bud perulate, gray or silvery

pubescent, scales deciduous. Leaves with petioles 1-6 cm long, sparsely pubescent; blades narrowly to broadly elliptic, to subovate, subobovate or oval, 6-30 x 3.5-19 cm, chartaceous, upper surface glabrescent, lower surface often glaucous, base acute, rounded or obtuse, apex acuminate to acute. Inflorescences axillary, compact or loose panicles. Perianth segments 4-6 mm long; pedicel woody, naked. Berry 5-15 cm long, broadly or narrowly pyriform or oval.

GENERAL DISTRIBUTION: Native of Central America but generally cultivated and persisting in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Dominica!, St. Vincent!. Probably on all islands but not represented by herbarium specimens.

COMMON NAMES: Pear, avocado, avocatier, avocat, awacati, avocado pear, alligator pear.

***Persea urbaniana* Mez, Jahrb. Königl. Bot. Gard. Berlin 5: 143. 1889.**

FIGURE 101.

Lectotype: Jamaica, *Wright s.n.* (hb. Forsyth (K); isolectotype (NY).)

Syn.: *Persea glaberrima* Mez, Jahrb. Königl. Bot. Gart. Berlin 5: 144. 1889. (Syntypes: Dominica, *de Ponthieu s.n.* (BM), *Imray 133* (K); St. Lucia, *Forsyth s.n.* (C).)

Tree to 7 m, branches tawny strigulose to glabrate. Leaves with petioles 1-2.5 cm long; blades elliptic, ovate-elliptic to oblanceolate, 5-10 x 2.5-4.5 cm, coriaceous, lower surface sparsely strigose, base rounded or obtuse, apex acute to acuminate. Inflorescences axillary, paniculate, shorter than leaves. Tepals ovate, strigulose outside, glabrous within; perianth segments persistent in fruit. Berry globose, 1-1.7 cm in diameter.

GENERAL DISTRIBUTION: Jamaica, Puerto Rico, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia.

COMMON NAMES: Sweetwood, laurier-avocate.

HERNANDIACEAE

by George W. Staples

HERNANDIACEAE Blume, Bijdr. 550. 1826, nom. cons.

Trees, shrubs, or woody vines. Leaves alternate, simple or lobed or palmately compound, exstipulate, pinnately or palmately nerved, often with ethereal oil cells and cystoliths. Inflorescences axillary, rarely terminal, long pedunculate, compound cymes. Flowers small, regular, perfect or unisexual, plants then polygamous or monoecious (rarely dioecious); perianth uniseriate (stamens

then alternate with tepals) or pluriseriate (stamens then opposite outer whorl), aestivation imbricate, rarely valvate; stamens 3 to 5 (to 7), in 1 whorl, filaments often with basal glands, anthers 2-celled, introrse, valvular dehiscent; ovary inferior, unilocular, ovule 1, pendulous, style short or long, stigma terminal. Fruits dry, 1-seeded, drupaceous, often with terminal or lateral wings, or enclosed in enlarged cupule; seed lacking endosperm, embryo straight.

TYPE GENUS: *Hernandia* L.

A family of four genera and about 60 species, widespread in the tropics of the Old and New Worlds. Kubitzki (Bot. Jahrb. Syst. **89**: 78-209. 1969) monographed the family and concluded that the segregation of the Gyrocarpaceae is unwarranted. Shutts (Trop. Woods **113**: 85-123. 1960) had suggested this action, without formally implementing it, after studies of wood anatomy and reconsideration of morphological evidence accumulated since Pax (in A. Engler and K. Prantl, Nat. Pflanzenfam. **3**(2): 126-129. 1889) established this concept of the Hernandiaceae by uniting the four genera.

One species of *Hernandia* is found in the Lesser Antilles. The genus *Gyrocarpus* was cultivated at the Botanical Garden, Roseau, Dominica, but doubtfully exists there now since the garden was destroyed by a hurricane. *Gyrocarpus* is readily distinguishable from *Hernandia* by its fusiform fruits with two long spatulate wings.

HERNANDIA L.

Hernandia L., Sp. Pl. **2**: 981. 1753.

Evergreen trees. Leaves long petiolate, often peltate, simple (rarely 3- to 5-lobed), pinnately or palmately veined. Inflorescences aggregate, corymbose, the ultimate units consisting of involucrate cymes with a central sessile pistillate (rarely perfect) flower subtended by 2 shortly pedicellate staminate flowers, the whole enclosed by 4 or 5 bracts. Staminate flowers subtended by 2 \pm equal bracteoles, tepals 6 to 8, stamens 3 or 4, filaments with 2 basal glands (?staminodes), pistil absent; pistillate flowers with bracteoles fused into a cupule, tepals 8 (to 10), staminodes none, but 4 glands opposite outer whorl of tepals, ovary inferior, slightly laterally compressed, unilocular, uniovulate, style short, thickened at base, stigma dilated. Fruits enclosed in much enlarged cupule; drupe hard, ellipsoid, usually 8-ridged, 1-seeded; seed with thick testa, cotyledons free and \pm thickened, or fused and ruminant.

TYPE SPECIES: *Hernandia sonora* L.

A pantropical genus with 24 species, according to Kubitzki (loc. cit.). A single species is endemic in the West Indies, and occurs throughout the Lesser Antilles.

Hernandia sonora L., Sp. Pl. **2**: 981. 1753.

FIGURE 103.

Lectotype: Hort. Cliff. 485, t. 23 (33). 1738.

Syn.: *Hernandia sonora* var. *?guadeloupensis* Meissner in DC., Prodr. **15**(1): 264. 1864.

(Type: Guadeloupe, Perrottet s.n. (G-DC, IDC 800. 2388: II. 8, III. 1, photo!))

Tree to 20 m tall; trunk to 70 cm in diameter, bark light brown, smooth to slightly tuberculate; branches stout. Leaves with petioles faintly striate, 10-25 cm long, the lower leaves distinctly peltate, the upper leaves not so; blades broad ovate to ovate-lanceolate, 13.5-38 x 9.5-26 cm, chartaceous, darker above, glabrous or minutely puberulent along veins below, base rounded or shallowly cordate, margins entire, apex acute to acuminate, venation actinodromous, with 1 suprabasal pair of secondary veins much better developed than others. Inflorescences arising from upper leaf axils, long pedunculate, 12-20 cm long; involucre bracts oblong, 5-6 mm long, finely gray tomentose. Flowers with tepals elliptic, obtuse, 5-7 x 1.5-2.8 mm, tomentulose, yellowish to greenish white; staminate flowers with 6 tepals, 3 stamens, filaments pilose, biglandulose; pistillate flowers with broad cupule, 3 x 2 mm, tepals 8. Drupes ovoid to ovoid-ellipsoid, \pm shortly stipitate, umbonate, 2.5-3.3 x 1.8-2.7 cm, prominently (6- to) 8-costate, black, enclosed within enlarged, yellowish, apple-scented cupule, equal to or slightly exceeding length of drupe, to 6 cm in diameter, with circular apical orifice.

GENERAL DISTRIBUTION: Confined to the islands of the Greater and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe, Martinique, St. Vincent, Barbados.

COMMON NAMES: Mirobolan, mirobolan bâtard, jack-in-the-box.

NOTES: The species concepts applied in *Hernandia* have varied dramatically. Kubitzki (loc. cit.) maintains a narrow species concept that recognizes many species, each of limited geographical distribution, in the genus. Others, notably Kostermans (Meded. Bot. Mus. Herb. Rijks Univ. Utrecht 25: 44-48, 64-65, 338-344. 1936), have elected to recognize few species of widespread distribution, synonymizing much of the genus with *H. sonora* in doing so.

The protologue for *Hernandia sonora* cites pre-Linnaean literature that was based on both Asian and American plants, which may have influenced subsequent authors' interpretation of the taxon. General practice has been to base the epithet on the plate in Hortus Cliffortianus, which Linnaeus states is drawn from American plants, though no specimen is extant in the Clifford herbarium (C. Jarvis, pers. comm.). Linnaeus erred in citing plate 23, however, as the correct number should be 33. Kubitzki (loc. cit., 153) commented that this plate 33 could be taken as the type of *H. sonora*, a choice which is slightly ambiguous since plate 33 is not diagnostic for the taxon. Plate 33 depicts a sterile branch and only Linnaeus' comment, "Habemus specimen ex America lectum...", indicating the provenance of the specimen from which the plate was drawn enables one to refer the plate to the Antillean *H. sonora* rather than other peltate-leaved species of *Hernandia*. Nonetheless the choice of lectotype does not meet any of the criteria for rejection outlined in Articles 8 and 9 of the Code, and we therefore accept it.

This species is grown as an ornamental in the Lesser Antilles, and is planted for shade in cacao (*Theobroma*) plantations on Trinidad.

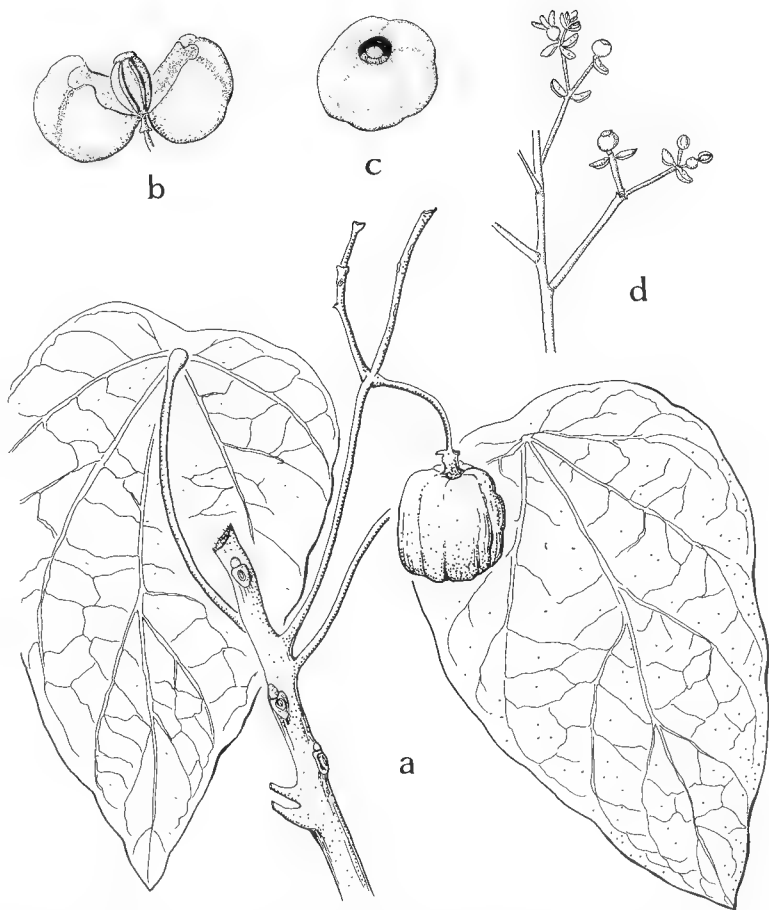


FIGURE 103. *Hernandia sonora*: a, shoot, x 0.16; b, young fruit with inflated cupule split, x 0.25; c, mature cupule and enclosed fruit, x 0.25; d, bisexual inflorescence, x 0.5.

PAPAVERACEAE

PAPAVERACEAE A. L. Juss., Gen. Pl. 235. 1789.

Annual or perennial herbs or weak-stemmed shrubs, with milky or brightly colored sap. Stipules wanting. Leaves alternate or rarely opposite above. Flowers solitary or in panicles, perfect, regular; sepals 2, caducous; petals 4 to 6 or wanting, imbricate and wrinkled if present; stamens 6 to many, filaments filiform, distinct; ovary superior, usually 1-celled, style short, stigmas capitate or spreading, ovules few to numerous. Fruit a capsule, dehiscent by pores or valves.

TYPE GENUS: *Papaver* L.

A family of 20 genera mostly of north temperate areas.

KEY TO THE GENERA

Spiny herbs; flowers few, petals large, yellow or white; capsules apically dehiscent by short valves *Argemone*
Soft-wooded small shrubs, without spines; flowers many, small, petals wanting; capsules completely dehiscent by 2 caducous valves from base, leaving a vascular ring *Bocconia*

ARGEMONE L.

Argemone L., Sp. Pl. 1: 508. 1753.

Herbs with yellow sap; stems with weak spines. Leaves sessile, glaucous, margin and abaxial midrib spiny. Flowers axillary, sessile; sepals 2 or 3, caducous; petals 4 to 6, large, wrinkled; stamens numerous; ovary 1-celled, placentae 4 to 6, ovules many; stigmas subsessile, capitate. Fruit a capsule, usually prickly, dehiscent by valves from apex, septae and stigmas persisting; seeds numerous.

TYPE SPECIES: *Argemone mexicana* L.

A genus of 10 species of southern United States and Mexico.

Argemone mexicana L., Sp. Pl. 1: 508. 1753.

FIGURE 104.

Type: LINN 607.1.

Herb to 60 cm high; stems with scattered weak spines. Lower leaves petiolate, forming a rosette, upper leaves sinuate-pinnatifid, 8-28 x 3.5-11 cm, sessile, glaucous, marginal teeth ending in spines, occasionally with spines on abaxial midrib. Flowers axillary, sessile or subsessile, subtended by leaflike bracts; sepals ovate, 2 cm long, acuminate; petals broadly obovate, 2-3 cm long, white or yellow; stamens numerous; ovary ovoid, 8-10 mm long, with soft spines,

stigmas capitate, dark red. Capsules 2.5-4 x 1.5-2 cm, furrowed, spiny, dehiscent by valves; seeds numerous, globose, transversely reticulate-pitted, dark brown to black.

GENERAL DISTRIBUTION: Widespread in tropical America and elsewhere as a weed.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Lucia, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Mexican poppy, thistle, yellow thistle, chardon, chardon marbre.

BOCCONIA L.

Bocconia L., Sp. Pl. 1: 505. 1753.

Weak-wooded shrubs with bright orange juice and septate pith. Leaves alternate, petiolate, pinnately lobed, without spines. Flowers numerous, small, in terminal much-branched panicles; sepals 2, caducous; petals wanting; stamens

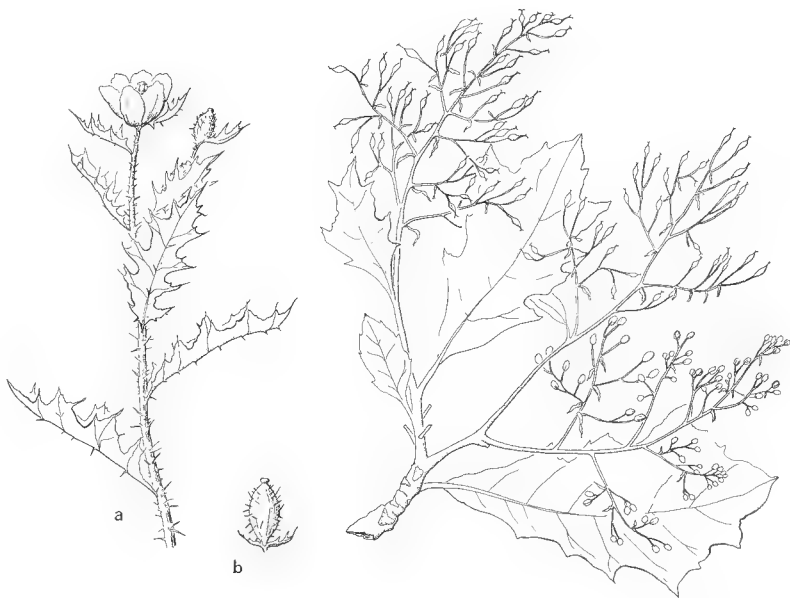


FIGURE 104 (left). *Argemone mexicana*: a, flowering shoot x 0.3; b, fruit, x 0.3. FIGURE 105 (right). *Bocconia frutescens*, x 0.3.

8 to 24; ovary superior, long-stalked, 1-celled, placentae 2, ovule 1, style developed, stigmas spreading. Capsules dehiscent by 2 caducous valves from base; seed solitary, large, smooth, with cuplike aril.

TYPE SPECIES: *Bocconia frutescens* L.

A genus of 10 species in warm areas of Asia and the West Indies.

• ***Bocconia frutescens* L., Sp. Pl. 1: 505. 1753.**

FIGURE 105.

Type: Jamaica, LINN 609.1.

Weak-wooded shrub to 5 m tall. Leaves with petioles 1.5-3 cm long; blades oblong-elliptic in outline, shallowly lobed or deeply pinnatifid, 14-35 x 8-18 cm, usually densely tomentose below, becoming glabrate. Panicles to 40 cm long. Sepals elliptic, 7-8.5 mm long, yellow-cream; ovary slightly stalked, style elongate, stigma lobes linear. Capsules ellipsoid, 7-8 mm long; seed blue-black, smooth, turgid, aril red.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada.

COMMON NAME: Grande chelidoine.

CRUCIFERAE

by Ihsan Al-Shehbaz

CRUCIFERAE A. L. Juss., Gen. Pl. 237. 1789 (nom. alt.: BRASSICACEAE Burnett, Outl. Bot. 1123. 1835).

Annual, biennial or perennial herbs, rarely small shrubs, almost always with pungent watery juice. Leaves alternate, rarely opposite, exstipulate. Inflorescences racemose or corymbose, mostly ebracteate. Flowers bisexual, hypogynous, mostly actinomorphic; sepals 4, free, in 2 decussate pairs; petals 4, cruciate, usually clawed, alternating with sepals, rarely absent; stamens 6 (rarely more or 4 or 2), tetradynamous (outer pair shorter than inner two pairs); filaments usually free, with or without appendages or wings; anthers mostly 2-lobed; nectar glands variously arranged around bases of stamens; ovary superior, 2-carpellate, usually bilocular by presence of false septum; ovules 1 to many on parietal or subapical placentae; style present or obsolete; stigma capitate or 2-lobed. Fruit a long or a short silique, often dehiscent by 2 valves from below upward, sometimes lomentoid, schizocarpic, samaroid, or an indehiscent 1- or 2-seeded nutlet; seeds without endosperm, sometimes mucilaginous when wet; cotyledons variously oriented to radicle, i.e., accumbent, margins facing radicle;

incumbent, back of one facing radicle; conduplicate, folded upon themselves and around radicle.

TYPE GENUS: *Brassica* L.

About 340 genera with more than 3300 species, distributed primarily in the temperate regions of both hemispheres. For further information on the family, see: O. E. Schulz in I. Urban, *Symb. Antill.* **3**: 493-523. 1903; O. E. Schulz in A. Engler and H. Harms, *Nat. Pflanzenfam.* ed. 2, **176**: 227-658. 1936; I. A. Al-Shehbaz, *J. Arnold Arbor.* **65**: 343-373. 1984; and I. A. Al-Shehbaz, *J. Arnold Arbor.* **66**: 279-351. 1985.

KEY TO THE GENERA

1. Siliques < 2 times as long as broad.
 2. Siliques ovate to orbicular, dehiscent; valves smooth, readily falling and exposing septum *Lepidium*
 2. Siliques reniform, indehiscent or sometimes separating into 2 closed, 1-seeded segments; valves wrinkled or reticulate *Coronopus*
1. Siliques > 3 times as long as broad.
 3. Siliques indehiscent or of 2 transversely separating joints.
 4. Siliques 2-jointed; seeds oblong; petals 6-9 mm long; plants of beaches and sandy shores *Cakile*
 4. Siliques indehiscent or lomentaceous; seeds globular; petals 14-22 mm long; cultivated plants *Raphanus*
 3. Siliques longitudinally dehiscent by 2 valves.
 5. Siliques beaked; seeds globular; cotyledons conduplicate.
 6. Valve 1-veined *Brassica*
 6. Valve 3- to 7-veined *Sinapis*
 5. Siliques not beaked; seeds oblong to ovate; cotyledons accumbent or incumbent.
 7. Petals yellow; siliques subulate, closely appressed to rachis .. *Sisymbrium*
 7. Petals white to lavender or absent; siliques spreading to ascending.
 8. Petals absent; leaves not deeply divided *Rorippa*
 8. Petals present; at least some leaves deeply divided into 2 to 7 pairs of leafletlike segments.
 9. Siliques ca. 1 mm wide; valves nerveless; seeds in 1 row in each locule; leaves not auriculate at base of petiole *Cardamine*
 9. Siliques 2-3 mm wide; valves distinctly nerved; seeds in 2 rows in each locule; leaves auriculate at base of petiole *Nasturtium*

BRASSICA L.

Brassica L., *Sp. Pl.* **2**: 666. 1753.

Annual, biennial or perennial herbs with simple and stiff hairs, rarely glabrous. Lower leaves entire to lyrate-pinnatifid, often rosette-forming; upper leaves petiolate or sessile to amplexicaul. Flowers yellow, in ebracteate racemes that elongate in fruit; sepals erect or spreading, inner pair slightly saccate; petals long-clawed, blades often obovate; stigma often prominent, capitate or 2-lobed.

Silicles terete or angled to somewhat flattened, often torulose, tipped with indehiscent, seedless or 1- or 2-seeded, conical or slender beak; lower segment dehiscent, many-seeded; valves convex, with prominent median vein; seeds globular, uniseriate; cotyledons conduplicate.

LECTOTYPE SPECIES: *Brassica oleracea* L.

A Mediterranean genus of approximately 35 species.

KEY TO THE SPECIES

1. Upper cauline leaves amplexicaul or auriculate at base.
 2. Opened flowers not overtopping buds; sepals erect; lower leaves completely glabrous *B. oleracea*
 2. Opened flowers overtopping buds; sepals spreading; lower leaves with some setiform hairs *B. rapa*
1. Upper cauline leaves petiolate *B. juncea*

***Brassica juncea* (L.) Czernj., Consp. Pl. Char. 8. 1859.**

FIGURE 106.

Basionym: *Sinapis juncea* L., Sp. Pl. 2: 668. 1753.

Type: Asia, LINN 845.11.

Syn.: *Sinapis integrifolia* West, Bidr. St. Croix 296. 1793.

Brassica integrifolia (West) O. Schulz in Urban, Symb. Antill. 3: 509. 1903.

Sinapis brassicata Griseb., Fl. Brit. W. Indian Is. 14. 1859, not L. 1768.

Annual herb, glabrous or sparsely setose or pilose, sometimes glaucous; stems to 120 cm tall, erect and much branched. Lower leaves long-petiolate, lyrate-pinnatisect, with 1 to 3 lateral lobes and much larger terminal lobe, sometimes slightly lobed or undivided and coarsely dentate, 6-28 cm long, to 8 cm broad; upper leaves short-petiolate, smaller, oblong to linear or lanceolate, entire or dentate. Flowers in loose, several-flowered racemes; pedicels slender, spreading; petals 6-12 mm long, bright yellow, obovate. Silicles 30-60 x 1.5-3.5 mm, erect-spreading, torulose, glabrous; beak slender, 3-10 cm long; seeds brown.

GENERAL DISTRIBUTION: Probably a native of southern and central Asia, cultivated and widely naturalized in both hemispheres, very common throughout the West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Guadeloupe!, La Désirade, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: India mustard, leaf mustard, wild mustard, mostaza, moutarde.

NOTES: Schulz (in A. Engler and K. Prantl, Pflanzenr. IV. 105(1): 1-290. 1919) recognized *Brassica juncea* and *B. integrifolia* as distinct species and separated them on the basis of having deeply pinnatifid lower leaves with 1 to 3 pairs of lateral lobes and broader silicles (2-3.5 mm) in the former and undivided leaves and narrower silicles (1-2 mm) in the latter. These alleged differences, however,

are unreliable and there is a continuous variation in leaf characters and in fruit width among the numerous forms of *B. juncea*. It is not advisable, therefore, to give any formal recognition to the plants formerly assigned to *B. integrifolia*.

***Brassica oleracea* L., Sp. Pl. 2: 667. 1753.**

Type: Not selected.

Glabrous and very glaucous biennial or perennial herb, to 3 m tall. Basal leaves thick, obovate or oblong, to 40 cm long, usually petiolate, crenate to repand; cauline leaves ovate-lanceolate to oblong, mostly sessile and clasping. Inflorescences paniculate. Sepals erect; petals obovate, 14-20 mm long. Siliques terete, 50-100 x 2-5 mm; beak conical, 4-10 mm long; seeds mostly brown.

GENERAL DISTRIBUTION: Native of Europe, now widely cultivated throughout the world.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Saba, Guadeloupe, Martinique, Barbados.

NOTES: Of the several cultivated varieties recognized in this species, two are grown in our area. The cabbage or chou is *B. oleracea* var. *capitata* L., and the cauliflower or chou-fleur is *B. oleracea* var. *botrytis* L.

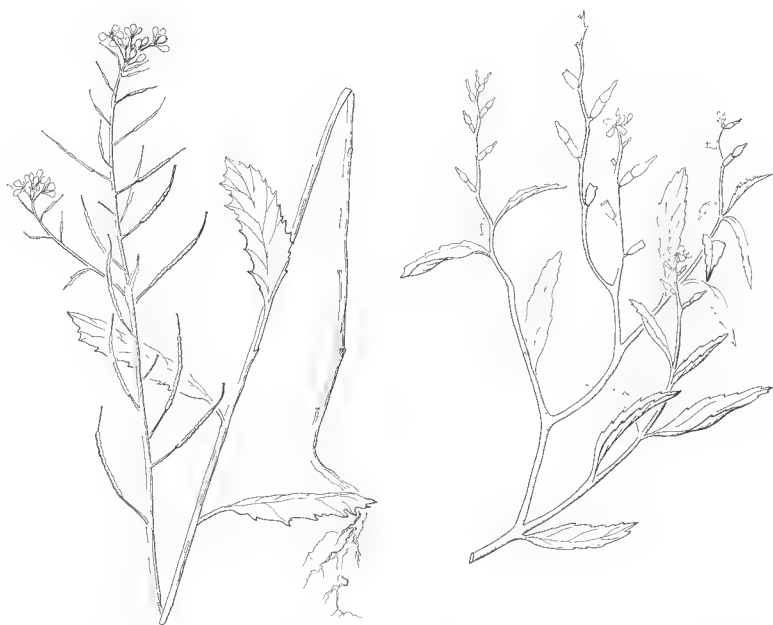


FIGURE 106 (left). *Brassica juncea*, x 0.35. FIGURE 107 (right). *Cakile lanceolata*, x 0.35.

Brassica rapa L., Sp. Pl. 2: 666. 1753.

Type: Not selected.

Biennial with globular to fusiform fleshy tap roots; stems to 1 m tall. Basal leaves petiolate, lyrate-pinnatifid, with few setiform hairs; cauline leaves usually glaucous, amplexicaul, nearly entire, oblong-lanceolate. Flowers overtopping buds. Sepals spreading; petals 6-10 mm long, bright yellow. Siliques 50-100 x 2-4 mm; beak to 2.5 cm long; fruiting pedicels slender, divaricate-ascending; seeds dark brown.

GENERAL DISTRIBUTION: Native of Eurasia, now widely cultivated throughout the world. Some varieties with nontuberous taproots have become naturalized in most of the continents.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Guadeloupe, Martinique, Barbados.

COMMON NAMES: Turnip, navet.

NOTES: Fournet (1978) indicated that the Chinese cabbage, *Brassica chinensis* L., is cultivated in Guadeloupe and Martinique, but no specimens have been seen. As shown by Al-Shehbaz (1985), this plant should now be called *B. rapa* var. *chinensis* (L.) Kitamura.

CAKILE Miller

Cakile Miller, Gard. Dict. abr. ed. 4, 1: 28. 1754.

Annual or rarely perennial, mostly glabrous, fleshy herbs; stems often branching near base, branches decumbent, ascending or variously oriented. Leaves fleshy, petiolate, dentate, sinuate or variously lobed to deeply pinnatifid. Flowers in terminal ebracteate racemes. Sepals erect, hyaline-margined, lateral pair somewhat saccate at base; petals clawed, obovate to spatulate, obtuse to emarginate, white to purple; nectar glands 4, dimorphic, lateral pair 2-lobed; style lacking; stigma capitate to somewhat 2-lobed. Siliques fleshy when immature, becoming corky, transversely articulate into 2 indehiscent, readily separating, usually 1-seeded segments; lower segment terete to somewhat angled; upper segment terete to angled and ribbed; beak conical or flattened and ensiform; seeds oblong; cotyledons mostly accumbent.

LECTOTYPE SPECIES: *Cakile maritima* Scop., based on *Bunias cakile* L.

A small genus of 7 species primarily distributed on sandy beaches of seashores, one inland species in southeastern Arabia.

Cakile lanceolata (Willd.) O. Schulz in Urban, Symb. Antill. 3: 504. 1903.

FIGURE 107.

Basionym: *Raphanus lanceolatus* Willd., Sp. Pl. 3: 562. 1800.

Type: "Antillis," anon. s. n. (B, photo at GH!).

Syn.: *Cakile domingensis* Tussac, Fl. Antill. 1: 119. 1808. (Type: Dominican Republic, Port François(?), Tussac s. n.)

Cakile aequalis L'Hér. ex DC., Syst. Nat. 2: 430. 1821. (Type: Martinique, *Richard s. n.*)

Cakile cubensis Kunth, in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 75. 1821. (Type: Cuba, Cayo Bonito, March 1801, *Humboldt & Bonpland s. n.*)

Annual to perennial, usually diffuse, branches sometimes more than 1 m long, erect or often prostrate. Lower leaves ovate or lanceolate to oblanceolate, dentately to sinuately lobed, rarely entire or pinnatisect, 4-10 x 1.5-3 cm; upper leaves smaller, often subentire. Sepals 4-5 mm long; petals 5.5-9 x 1.7-4 mm, white to rarely lavender. Fruiting pedicels thick, 1.5-4 mm long, often divergent; siliques nearly cylindrical, 17-31 mm long; upper segment long-beaked, somewhat lanceolate, slenderly conical to slightly tetragonal or furrowed; lower segment 5-10 mm long, usually < 1/2 length of upper segment, terete at base, broader at apex, mostly with 2 projecting teeth; beak acute or occasionally blunt, straight or sometimes curved.

GENERAL DISTRIBUTION: Greater Antilles, Caribbean coasts of Central America and northwestern South America, United States and Mexican coasts of the Gulf of Mexico.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Les Saintes, Martinique, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Sea rocket, mostacilla del mar, chou-bord-de-mer.

NOTES: Plants of sandy coastal areas. According to J. E. Rodman (Contr. Gray Herb. 205: 3-146. 1974), four subspecies are recognizable in *C. lanceolata*. By far the most widely distributed of these is ssp. *lanceolata*, which is the sole representative in the Greater and Lesser Antilles as well as in the Bahamas and northwestern South America. It is easily distinguished from the other subspecies by its siliques that have an upper segment twice as long as or longer than the lower segment.

CARDAMINE L.

Cardamine L., Sp. Pl. 2: 654. 1753.

Annual, biennial or perennial herbs, sometimes rhizomatous, glabrous or with unbranched hairs. Leaves petiolate, usually lyrate or pinnate with a large terminal segment, sometimes simple. Inflorescences ebracteate, racemose. Sepals erect, inner pair slightly saccate; petals clawed, obovate to spatulate, white or purple, rarely yellow; style short; stigma capitate or 2-lobed. Siliques linear, straight, compressed parallel to septum; valves obsoletely 1-nerved or nerveless, often circinnately or spirally coiling and elastically dehiscent from base; seeds uniseriate in each locule, wingless; cotyledons accumbent.

LECTOTYPE SPECIES: *Cardamine pratensis* L.

A cosmopolitan genus of about 175 species. See also: O. E. Schulz, Bot. Jahrb. Syst. **32**: 280-623. 1903.

Cardamine flexuosa With., Arr. Br. Pl. ed. 3, **3**: 578. 1796.

FIGURE 111 (pg. 289).

Type: England, not designated.

Biennial or perennial herbs with slender rhizomes, sometimes annual; stems 10-50 cm high, somewhat flexuous, glabrous or hairy near base. Lowest leaves pinnate, somewhat membranous, with 3 to 6 pairs of reniform or ovate to orbicular lateral segments and somewhat larger terminal segment, glabrous or ciliate on petioles, crenate-dentate or repand to entire; upper leaves more or less similar to lower leaves in size and shape. Petals 2-4 mm long, hardly exceeding sepals, white; style 0.5-1.5 mm long. Fruiting pedicels slender, ascending-spreading; siliques 1-2.5 cm long, ca. 1 mm broad, erect-ascending, slightly overtopping flowers.

GENERAL DISTRIBUTION: Native of Eurasia, now in North America, Bahamas, Haiti, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique.

COMMON NAMES: Wavy or wood bittercress, cresson savanne.

NOTES: The species limits of *Cardamine flexuosa* as drawn by Schulz (Bot. Jahrb. Syst. **32**: 280-623. 1903) cannot be accepted since elements of other recognizable species were included. Our plants share some characters with the very closely related *C. hirsuta*, which has been reported from Jamaica and Hispaniola. However, *C. flexuosa* can be easily recognized by its perennial habit, its siliques and pedicels never appressed to rachis, its cauline leaves similar to basal leaves, both glabrous, and its somewhat flexuous stems, and by its lack of a typical basal rosette.

CORONOPUS Zinn

Coronopus Zinn, Cat. Pl. Gott. 325. 1757, nom. cons.

Plants annual, biennial or rarely perennial; stems usually several from base, procumbent, rarely erect. Leaves petiolate, often deeply pinnatisect, rarely dentate to entire. Flowers very small, in terminal or axillary racemes. Sepals spreading, not saccate, usually persistent in fruit; petals linear-oblong, slightly longer than sepals, often white, sometimes aborted or absent; stamens 2 or 6, not appendaged; nectar glands same number as and alternating with filaments. Siliques laterally compressed, usually didymous, indehiscent or breaking into two 1-seeded halves; valves hemispherical, verrucose-tuberculate to reticulate; seeds oblong to subglobular; cotyledons incumbent.

TYPE SPECIES: *Coronopus ruellii* All., based on *Cochlearia coronopus* L. (= *Coronopus squamatus* (Forsskål) Ascherson).

A cosmopolitan genus of 10 species in the temperate and subtropical regions. See also: R. Muschler, Bot. Jahrb. Syst. **41**: 111-147. 1908.

Coronopus didymus (L.) Smith, Fl. Brit. 2: 691. 1800.

FIGURE 108.

Basionym: *Lepidium didymum* L., Mant. Pl. 1: 92. 1767.

Type: Locality unknown (LINN 824.16).

Syn.: *Senebiera pinnatifida* DC., Mem. Soc. Hist. Nat. Paris 1: 144. 1799.

Annual or biennial herb; stems numerous, prostrate or sometimes ascending, 10-40 cm long, often pubescent. Lower leaves 3-10 cm long, deeply pinnatisect, with 3 to 5 pairs of oblanceolate, dentate to pinnatifid segments; petioles sometimes winged; upper leaves short-petiolate to sessile, smaller and less divided, with subentire segments. Racemes terminal and axillary. Pedicels 1.5-3 mm long; sepals ca. 0.5 mm long; petals 0.5 mm long or shorter, sometimes absent; stamens 2; style absent. Siliques 1-1.5 x 2-3 mm, emarginate, didymous, separating into two 1-seeded, ovoid segments; valves wrinkled or reticulate.

GENERAL DISTRIBUTION: Native of South America now almost cosmopolitan, widely distributed in the West Indies (Bahamas, Bermuda, Cuba, Jamaica, Puerto Rico).

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Martinique!.

COMMON NAMES: Swine cress, wart cress.

NOTES: Weed of old fields, waste places and roadsides. Muschler (Bot. Jahrb. Syst. 41: 111-147. 1908) recognized 2 subspecies in *Coronopus didymus*, 1 of which has 3 varieties. Although he did not study any material from the West Indies, our plants clearly fall under ssp. *didymus* (ssp. *eudidymus*). The claims



FIGURE 108. *Coronopus didymus*, x 0.55.

by several botanists that the species is a native of Eurasia do not have any supporting evidence. *Coronopus didymus* is native to South America, where its nearest relatives and its greatest morphological diversity are found.

LEPIDIDIUM L.

Lepidium L., Sp. Pl. 2: 643. 1753.

Annual, biennial or perennial herbs, rarely suffrutescent. Lower leaves petiolate, pinnately divided to tripinnate, rarely entire. Pedicels terete or flattened. Flowers in dense, ebracteate racemes that often elongate in fruit. Sepals not saccate; petals small, usually oblanceolate to spatulate, sometimes absent, white, rarely pink or yellow; stamens 6, 4 or 2; filaments neither appendaged nor toothed; ovary 2-ovuled; style short or absent; stigma capitate. Siliques orbicular to ovate or elliptic to oblong, dehiscent, strongly compressed contrary to septum (angustiseptate); valves distally winged or wingless, often strongly keeled, usually forming a sinus at apex of fruit; seeds solitary, rarely 2 per locule, pendulous, mucilaginous; cotyledons accumbent to incumbent.

LECTOTYPE SPECIES: *Lepidium latifolium* L.

A cosmopolitan genus of about 175 species distributed primarily in the temperate regions. See also: C. L. Hitchcock, *Madroño* 8: 118-143. 1945.

KEY TO THE SPECIES

- Siliques 5-6 mm long; stamens 6; fruiting pedicels erect-ascending *L. sativum*
Siliques 2-4 mm long; stamens 2, rarely 4; fruiting pedicels spreading *L. virginicum*

Lepidium sativum L., Sp. Pl. 2: 644. 1753.

Type: Locality not given (LINN 824.11).

Annual, 20-80 cm tall; stem single, often branching above, usually glaucous, glabrous or pilose. Basal leaves long-petiolate, lyrate-pinnate to bipinnatifid; cauline leaves becoming progressively less divided and less toothed upward; uppermost leaves linear and entire. Inflorescences paniculate. Sepals 1-1.5 mm long, glabrous or pilose; petals 2-3 mm long, oblong-spatulate, white to lilac; stamens 6. Fruiting pedicels 2-4 mm long, erect-ascending; siliques broadly elliptic or ovate to orbicular, 5-6 x 3-5 mm, distinctly emarginate, glabrous; valves distinctly winged, obtuse at apex; style not extending beyond notch of fruit.

GENERAL DISTRIBUTION: Native of the eastern Mediterranean countries, now widely cultivated and naturalized throughout much of the world.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe.

COMMON NAMES: Cress, garden cress.

Lepidium virginicum L., Sp. Pl. 2: 645. 1753.

FIGURE 109.

Type: Virginia and Jamaica (LINN 824.18).

Annual or biennial, 20-90 cm tall; stems erect, often single below and much branched above, sparingly pubescent to densely hirsute, rarely glabrous. Basal leaves obovate to spatulate in outline, often deeply pinnatifid, 5-15 x 1-5 cm; lobes incised to dentate; uppermost leaves lanceolate to linear, incised to dentate or entire. Sepals ca. 1 mm long, glabrous or sparsely pubescent; petals spatulate, 1-3 mm long, rarely absent, white; stamens 2, rarely 4; nectar glands 4. Fruiting pedicels slender, 4-10 mm long, spreading to horizontal, glabrous or pubescent; siliques orbicular to broadly elliptic-ovate, 2.5-4 mm long, shallowly notched at apex, slightly winged, glabrous or rarely pubescent; seeds 1.5 mm long.

GENERAL DISTRIBUTION: Native of North America, introduced to all other continents except Antarctica, very common throughout the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts, Barbuda, Antigua, Saba!, St. Eustatius!, St. Kitts!, Nevis, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante, Dominica, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Pepper grass, Virginia pepper grass, poor man's pepper, mastuerzo, cresson à savane, cresson sauvage, cresson danois.

NOTES: Of the 6 varieties recognized in *Lepidium virginicum* by C. L. Hitchcock (Madroño 8: 118-143. 1945), only var. *virginicum* (var. *typicum*) occurs in our area and the rest of the West Indies. The presence of terete instead of slightly flattened pedicels and the accumbent instead of oblique or incumbent cotyledons easily distinguishes var. *virginicum* from the other five varieties. Schulz (in Urban, Symb. Antill. 3: 495. 1903) described var. *pinnatisectum* from Puerto Rico. It was raised to the rank of species by Hitchcock, who separated it from *L. virginicum* on the basis of its apetalous flowers, more flattened pedicels, pinnatisect cauline leaves, and ciliate siliques.

NASTURTIIUM R. Br.

Nasturtium R. Br. in Aiton f., Hortus Kew. ed. 2, 4: 109. 1812, nom. cons.

Glabrous, or rarely sparingly hairy, perennial, aquatic herbs. Leaves petiolate, mostly pinnate or pinnatisect. Inflorescences ebracteate, racemose; flowers numerous. Sepals erect to slightly spreading, inner pair saccate; petals clawed, white, rarely lilac; stamens 6, not appendaged; style short; stigma capitate to slightly 2-lobed. Siliques cylindric-linear, terete to somewhat flattened, glabrous, generally turgid; valves usually nerved, convex; seeds biseriate in each locule, reticulate, wingless; cotyledons accumbent.

TYPE SPECIES: *Nasturtium officinale* R. Br., based on *Sisymbrium nasturtium-aquaticum* L.



FIGURE 109 (left). *Lepidium virginicum*, x 0.5. FIGURE 110 (right). *Nasturtium officinale*, x 0.5.

A small cosmopolitan genus of 3 species. See also: O. E. Schulz, Repert. Spec. Nov. Regni Veg. **33**: 273-285. 1934; and P. S. Green in Rhodora **64**: 32-43. 1962.

Schulz placed all the known species of *Rorippa* under *Nasturtium* as he expanded the generic limits of the latter to include 50 species. However, *Rorippa* is an older name and should be used instead of *Nasturtium* if the 2 genera are united.

Nasturtium officinale R. Br. in Aiton f., Hortus Kew. ed. 2, **4**: 110. 1812.

FIGURE 110.

Basionym: *Sisymbrium nasturtium-aquaticum* L., Sp. Pl. **2**: 657. 1753.

Type: Europe and America (LINN 836.1).

Syn.: *Rorippa nasturtium-aquaticum* (L.) Hayek, Sched. Fl. Stiriac. **22**. 1905.

Glabrous herb; stems 8-90 cm long, usually hollow and angular, ascending or procumbent, always rooting from lower nodes, sometimes floating. Leaves glabrous, somewhat fleshy, pinnate, auriculate at base, with (1) 3 to 7 pairs of lateral segments; segments entire to repand or dentate, obtuse, oblong-elliptic or broadly ovate to orbicular; terminal segment usually larger, suborbicular. Inflorescences elongating in fruit. Sepals about 2 mm long; petals 4-5 mm long. Fruiting pedicels divaricate to horizontal, 8-15 mm long; siliques 8-35 x 2-2.5 mm, straight or incurved; valves with distinct median vein; seeds brown, ovoid to globular.

GENERAL DISTRIBUTION: Native of western Asia and Europe, now cultivated and naturalized throughout much of the world.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante, Dominica!, Martinique, St. Vincent, Barbados.

COMMON NAMES: Watercress, berros, cresson, cresson de fontaine, cresson-France, kousyon.

RAPHANUS L.

Raphanus L., Sp. Pl. **2**: 669. 1753.

Annual, biennial or perennial herbs, hispid or glabrous below. Leaves petiolate, lyrate-pinnatifid with large terminal lobe, or not lobed. Sepals erect, inner pair somewhat saccate; petals obovate, long-clawed, white, yellow or purple, often dark-veined; stigma slightly 2-lobed. Siliques 2-jointed, lower segment aborted, inconspicuous, seedless, resembling pedicel; upper segment thick, terete, indehiscent, usually constricted between seeds, sometimes lomentaceous and breaking into 1-seeded portions; beak seedless; seeds brown, globular; cotyledons conduplicate.

LECTOTYPE SPECIES: *Raphanus sativus* L.

Three species native to Eurasia.

Raphanus sativus L., Sp. Pl. **2**: 669. 1753.

Type: Locality not mentioned (LINN 846.1).

Annual or biennial herb with fleshy taproots of various sizes, shapes and colors, diffusely branched above, 30-90 cm tall. Leaves lyrate-pinnatifid, with large terminal lobe and smaller lateral ones, or leaves undivided, toothed to subentire, glabrous or sometimes sparingly hirsute. Sepals green or colored; petals 14-22 mm long, white to purple, mostly dark-veined; style slender. Siliques thick and spongy, sometimes constricted between seeds, 20-90 x 6-15 mm; beak conical, 1-2 cm long.

GENERAL DISTRIBUTION: Native of Eurasia, now widely cultivated throughout the world, but also naturalized in Europe and North America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Saba, Barbados. Perhaps more widely cultivated than indicated here.

COMMON NAMES: Radish, radis.

RORIPPA Scop.

Rorippa Scop., Fl. Carniol. ed. 1, 520. 1760.

Aquatic or terrestrial, annual, biennial or perennial herbs, often rosette-forming. Lower leaves petiolate, simple or variously pinnatifid to lyrate or pectinate. Inflorescences racemose, ebracteate, terminal or axillary. Sepals mostly glabrous, inner pair saccate; petals yellow, sometimes absent; stamens 6, rarely fewer, not appendaged; style short; stigma capitate or slightly 2-lobed. Siliques globose, oblong to linear-cylindrical, terete; valves mostly 2, convex, nerveless or obscurely 1-nerved, glabrous or papillose to pubescent; seeds usually biseriate in each locule, wingless, plump, reticulate to foveolate; cotyledons accumbent.

TYPE SPECIES: *Rorippa sylvestris* (L.) Besser, based on *Sisymbrium sylvestre* L.

A cosmopolitan genus of about 75 species occurring on all continents except Antarctica but more concentrated in the north temperate regions. See also: H. Hara, J. Jap. Bot. **30**: 193-198. 1955; R. C. Rollins, Rhodora **71**: 552-553. 1969; O. E. Schulz, Repert. Spec. Nov. Regni Veg. **33**: 273-285. 1934; R. L. Stuckey, Sida **4**: 279-430. 1972.

Rorippa indica (L.) Hiern, Cat. Afr. Pl. **1**: 26. 1896.

FIGURE 112.

Basionym: *Sisymbrium indicum* L., Mant. Pl. **1**: 93. 1767.

Type: India (LINN 836.52).

Syn.: *Nasturtium heterophyllum* Blume, Bijdr. Fl. Ned. Ind. **2**: 50. 1825.

Rorippa heterophylla (Blume) R. O. Williams, Fl. Trinidad **1**: 24. 1929.

Sisymbrium dubium Pers., Syn. Pl. **2**: 199. 1908.

Rorippa dubia (Pers.) H. Hara, J. Jap. Bot. **30**: 196. 1955.

Nasturtium sinapis (Burm. f.) O. Schulz, Repert. Spec. Nov. Regni Veg. **33**: 278. 1934.

Annual plants to 30 cm tall, with glabrous, somewhat flexuous stems. Lower leaves long-petiolate, ovate to oblong, obtuse, with a very large terminal lobe



FIGURE 111 (left). *Cardamine flexuosa*, x 0.4. FIGURE 112 (right). *Rorippa indica*, x 0.4.

and very small and few or no lateral lobes, 5-10 cm long, glabrous; margin repand to dentate, sometimes serrate; upper cauline leaves short-petiolate, narrowly ovate to lanceolate. Inflorescences elongating in fruit. Sepals narrowly oblong, 1.5-2 mm long, erect, glabrous; petals absent; style short. Fruiting pedicels slender, 3-8 mm long, often horizontal; siliques narrowly linear, terete, straight to slightly curved, 15-30 x 0.8-1.5 mm, usually divaricate to horizontal; seeds numerous, faintly reticulate.

GENERAL DISTRIBUTION: Native of tropical Asia, now naturalized in Africa, North America, much of South America, Jamaica, Puerto Rico, and Trinidad.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!.

NOTES: All the plants of this species naturalized in the New World appear to be apetalous and, therefore, should be referred to *Rorippa indica* (L.) Hiern var. *apetala* (DC.) Hochr., which differs from var. *indica* mainly by being apetalous (cf. Rollins, 1969). The taxonomy of this taxon has been very much confused and mishandled by various botanists, but there is no doubt that it is indistinguishable from the Asiatic plants placed under this species.

SINAPIS L.

Sinapis L., Sp. Pl. 2: 668. 1753.

Annual or rarely perennial hispid herbs. Basal leaves petiolate, lyrate to pinnatifid or pinnatisect, lobes often toothed; upper cauline leaves short-petiolate to sessile, entire or dentate. Flowers yellow, in ebracteate racemes; sepals spreading, not saccate; petals obovate, clawed; stigma somewhat 2-lobed. Siliques linear, terete, slightly torulose, prominently beaked; lower portion dehiscent, many-seeded; valves 3- to 7-veined; beak 0- to 2-seeded, indehiscent, conical or ensiform; seeds uniseriate, globular, cotyledons conduplicate.

LECTOTYPE SPECIES: *Sinapis alba* L.

About 7 species native to southwestern Asia, southern Europe and northern Africa. Two species are cosmopolitan weeds.

KEY TO THE SPECIES

- Beak strongly flattened, nearly as long as or longer than the 4- to 8-seeded lower segment of silique *S. alba*
Beak conical, shorter than the 8- to 17-seeded lower segment of silique *S. arvensis*

Sinapis alba L., Sp. Pl. 2: 668. 1753.

FIGURE 113.

Type: Europe (LINN 845.4).

Syn.: *Brassica hirta* Moench, Suppl. Meth. 84. 1802.

Annual herbs, 20-100 cm tall, with spreading or retrorse hairs, rarely glabrous. Basal leaves lyrate-pinnatifid, with sinuate-dentate lobes; lateral lobes oblong, smaller than obovate terminal lobe; upper leaves oblong to lanceolate, short petiolate, entire or dentate. Sepals 5-8 mm long; petals 8-15 mm long, obovate; stigma 2-lobed. Fruiting pedicels spreading, 5-14 mm long; siliques 20-45 x 2-6 mm, spreading; lower segment 1- to 4-seeded in each locule; valves 3- to 5-veined, glabrous or more often hispid; beak straight or curved, 0- or 1-seeded, 10-25 mm long, attenuate, strongly flattened and ensiform, slightly hirsute, > lower segment; seeds yellowish to brown.

GENERAL DISTRIBUTION: Native of the Mediterranean region, naturalized throughout Europe, very common in Asia, North America, parts of Africa and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique, Barbados!.

COMMON NAMES: White mustard, moutarde blanche.

NOTE: Weed in cultivated lands, waste places, and roadsides.

Sinapis arvensis L., Sp. Pl. 2: 68. 1753.

Type: Europe (LINN 845.2).

Syn.: *Brassica kaber* (DC.) Wheeler, Rhodora 40: 306. 1938.

Annual, 20-80 cm tall, hispid at least below, rarely glabrous. Basal leaves oblong or elliptic to obovate, lyrate-pinnatifid, with coarsely toothed, obovate

terminal lobe and smaller, oblong lateral lobes; upper leaves lanceolate to ovate or oblong, subsessile, entire or dentate to slightly lobed, glabrous or hispid. Sepals 4-5 mm long, equal at base, glabrous or sparingly pubescent; petals 6-15 x 5-6 mm. Fruiting pedicels thick, 3-7 mm long, spreading; siliques 20-55 x 1.5-4 mm, glabrous or shortly hispid with spreading or retrorse hairs; valves 3- to 5-veined; beak conical, 0- to 2-seeded, 6-18 mm long; seeds reddish brown or blackish.

GENERAL DISTRIBUTION: Native of the Mediterranean region, now widely naturalized and almost cosmopolitan. In the West Indies it has been reported from St. Croix, Bahamas, Jamaica, Cuba, Haiti and Dominican Republic.

DISTRIBUTION IN LESSER ANTILLES: No specific record is known from the Lesser Antilles, but due to its occurrence in the Greater Antilles, it is likely to be found in our area.

COMMON NAMES: Charlock, wild mustard, mostaza criolla.

NOTE: Weed in fields, waste places, and roadsides.



FIGURE 113 (left). *Sinapsis alba*, x 0.3. FIGURE 114 (right). *Sisymbrium officinale*, x 0.3.

SISYMBRIUM L.

Sisymbrium L., Sp. Pl. 2: 657. 1753.

Annual, biennial or perennial herbs. Lower leaves petiolate, lyrate-pinnatipartite, sometimes runcinate or entire; upper leaves similar and less divided or auriculate to amplexicaul. Flowers in bracteate or ebracteate racemes. Sepals erect to spreading, saccate or not, usually cucullate; petals mostly clawed, obovate to spathulate, mostly yellow, sometimes white; style short; stigma distinctly 2-lobed, rarely capitate. Siliques dehiscent, linear, terete to slightly flattened; valves usually 3-veined; seeds numerous, wingless, uniseriate, not mucilaginous; cotyledons incumbent.

LECTOTYPE SPECIES: *Sisymbrium altissimum* L.

A large cosmopolitan genus of about 90 species.

Sisymbrium officinale (L.) Scop., Fl. Carniol. ed. 2, 2: 26. 1772. FIGURE 114.

Basionym: *Erysimum officinale* L., Sp. Pl. 2: 660. 1753.

Type: Europe (LINN 837.1).

Annual or biennial herbs, to 1 m tall; stems erect, often stiff, branched above, retrorsely hispid. Basal leaves rosette-forming, ovate in outline, pinnatisect, with large terminal lobe and smaller, oblong and usually dentate lateral lobes; upper cauline leaves entire, subsessile, often less lobed, with long hastate terminal lobe. Racemes terminal, greatly elongating in fruit. Sepals 2-3 mm long, glabrous or hispid; petals 2-4 x 1 mm, yellow. Fruiting pedicels 2-4 mm long, thick, appressed to rachis; siliques 8-20 mm long, hirsute or glabrous, conical to subulate, gradually attenuating upward to short style.

GENERAL DISTRIBUTION: Native of Europe, now widely naturalized throughout the world; Bermuda, Hispaniola, Jamaica, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe.

COMMON NAMES: Hedge mustard, moutarde.

NOTES: The single known record for the species from our area was made by Mazé (Contr. Fl. Guadeloupe. 1892). No specimens from the Lesser Antilles have been seen, but the species occurs in the neighboring Greater Antillean islands, and it is altogether probable that it will be found in our area.

DOUBTFUL AND SOME CULTIVATED SPECIES

Armoracia rusticana P. Gaertner (horse radish) was reported from Barbados by Maycock (Fl. Barbadoes, 1830). No recent records are known from anywhere in the West Indies.

Iberis sp. (candytuft) and *Lobularia maritima* Desv. (sweet alyssum) were both reported as cultivated in Barbados (Gooding et al., 1965). We have seen no specimens of these, but it is possible that several other crucifers are also cultivated as ornamentals in our area.

CAPPARACEAE

by Ihsan Al-Shehbaz

CAPPARACEAE A. L. Juss., Gen. Pl. 242. 1789.

Herbs, shrubs or trees, with acrid watery sap, sometimes with stellate, lepidote or glandular pubescence. Leaves alternate, rarely opposite, simple or palmately compound and (1-)3- to 11-foliolate; stipules present or absent. Flowers actinomorphic or zygomorphic, bisexual or sometimes unisexual, hypogynous, borne in racemose or corymbose, bracteate or ebracteate inflorescences, sometimes solitary and axillary; sepals 4, imbricate to valvate or open in bud, free or connate almost to apex; petals 4, rarely absent, free, usually unguiculate, sometimes unequal; receptacle with nectariferous gland or disk, frequently elongated into gynophore or androgynophore; stamens 4 to many; filaments equal or unequal, inserted at base or apex of torus; anthers 2- to 4-celled, dehiscing longitudinally; ovary borne on gynophore or sessile, mostly 2-carpellate, usually 1-locular, rarely 2- or 4-locular by false septa; placentae parietal, usually 2; ovules often numerous; style usually obsolete; stigma capitate or 2-lobed. Fruit a siliquiform capsule dehiscing by 2 valves from replum, or baccate or drupaceous and indehiscent or irregularly rupturing; seeds with or without aril.

TYPE GENUS: *Capparis* L.

A family of about 45 genera and 700-750 species mostly distributed in the tropics and subtropics of both hemispheres. For further information about the family, see: A. W. Eichler in C. Martius, Fl. Bras. 13(1): 237-292, pl. 54-65. 1865; W. R. Ernst, J. Arnold Arbor. 44: 81-95. 1963; F. Pax & K. Hoffmann, Nat. Pflanzenfam. 17b: 146-223. 1936; R. E. Woodson, Jr., Ann. Missouri Bot. Gard. 35: 75-99. 1948.

CULTIVATED TAXA

Steriphoma elliptica (DC.) Sprengel was once cultivated in a private garden in Roseau, Dominica (Howard 11774 GH) and, as "*S. aurantiaca* Spreng.," was in the Botanical Garden of St. Pierre, Martinique.

KEY TO THE GENERA

1. Herbs; fruits siliquiform capsules dehiscing by 2 valves from replum *Cleome*
1. Shrubs or trees; fruits baccate or drupaceous, indehiscent or irregularly rupturing, without replum.
 2. Leaves 3-foliolate *Crateva*
 2. Leaves simple or clearly 1-foliolate.
 3. Sepals distinct or slightly united at base *Capparis*
 3. Sepals connate to apex into tubular to campanulate calyx.
 4. Flowers brilliant orange; stamens exerted, 2-3 times as long as petals; fruits narrowly oblong to cylindrical *Steriphoma*
 4. Flowers white to greenish; stamens included, shorter than petals; fruits globose *Morisonia*

CAPPARIS L.

Capparis L., Sp. Pl. 1: 503. 1753.

Shrubs or trees, glabrous, lepidote or with simple to stellate pubescence. Leaves simple, alternate, stipulate or estipulate, often coriaceous; stipules scaly, rarely spiny; petioles sometimes with distinct distal pulvinus. Inflorescences usually corymbose, terminal, bracteate. Flowers few to many, pedicellate; sepals distinct or connate at base, imbricate or valvate to open in bud, equal or in 2 unequal series, each subtending nectar gland; petals imbricate; stamens few to many, free; filaments filiform, mostly long-exserted, sometimes inserted on short androgynophore; ovary borne on gynophore, 1- to 4-celled; ovules few to many, usually on 2 placentae; stigma sessile. Fruits baccate, indehiscent or irregularly rupturing, long-cylindrical or oblong to globose; seeds few to many, embedded in pulp; testa coriaceous to crustaceous; embryo coiled.

LECTOTYPE SPECIES: *Capparis spinosa* L.

A genus of over 250 species mostly distributed in the tropics and subtropics of both hemispheres. For further information see: L. Radlkofer, Sitzungber. Math.-Phys. Cl. Königl. Bayer. Akad. Wiss. München **14**: 101-182. 1884; *ibid.* **17**: 365-422. 1887; W. Fawcett & A. B. Rendle, J. Bot. **52**: 142-144. 1914; A. Dugand, Caldasia **1**(2): 29-54. 1941; A. Dugand, Caldasia **10**: 219-229. 1968.

Mazé (Contr. Fl. Guadeloupe 4. 1892) listed both *Capparis ferruginea* L. and *C. verrucosa* Jacq. from Guadeloupe, but since his flora neither of these has been collected or reported from any of the Lesser Antillean Islands. The former species is known from the Greater Antilles, while the latter is known from Central America and northernmost South America and its neighboring islands.

KEY TO THE SPECIES

1. Inflorescences, fruits and lower leaf surfaces densely peltate-scaly; calyx lobes not imbricate; filaments pilose at base.
 2. Calyx lobes open in bud, erect, 2-3 mm long; petals densely tomentose outside; leaves thin or subcoriaceous, not shiny *C. indica*
 2. Calyx lobes valvate in bud, widely spreading to reflexed at anthesis, 4-12 mm long; petals peltate-scaly on back; leaves distinctly coriaceous, often shiny above.
 3. Stamens 0.5-0.8 cm long; sepals 4-6 mm long; fruits erect, sessile or on gynophores to 2 mm long *C. odoratissima*
 3. Stamens 2.5-4.5 cm long; sepals 7-12 mm long; fruits mostly drooping, gynophores 1-7.5 cm long *C. cynophallophora*
1. Inflorescences, fruits and leaves never scaly; calyx lobes imbricate; filaments glabrous or minutely puberulent at base.
 4. Leaves subfascicled at tips of branches; axillary glands absent; calyx 5-6 mm in diameter; filaments 1-1.5 cm long *C. baduicca*
 4. Leaves alternate throughout; axillary glands always present and prominent; calyx more than 1 cm in diameter; filaments 3-10 cm long.
 5. Leaves thin, occasionally subcoriaceous; fruits oblong to elliptic, 3-6 cm long *C. amplissima*
 5. Leaves rigidly coriaceous; fruits mostly long-cylindric to linear, (4)7-18(26) cm long.

6. Leaves subcordate at base; fruits not torulose, flattened *C. hastata*
 6. Leaves cuneate or round at base; fruits torulose, terete *C. flexuosa*

Capparis amplissima Lam., Encycl. 1: 607. 1785.

Type: Plum., Pl. Amer. t. 73, fig. 2. 1756.

Syn.: *Capparis cynophallophora* L. *acutifolia* Bello, Anales Soc. Esp. Hist. Nat. 10: 237. 1881. (Type: Puerto Rico.)

Capparis portoricensis Urban, Symb. Antill. 1: 309. 1899. (Type: Puerto Rico, syntypes cited.)

Trees 6-20 m tall; bark light brown, fissured. Stipules triangular, scaly, caducous; axillary glands glabrous, pyriform. Leaves with petioles glabrous, wrinkled, sulcate above, 0.3-1 cm long; blades elliptic to somewhat ovate, 3-12 x 2-6 cm, thin to occasionally subcoriaceous, glabrous, apex acute to obtuse, base obtuse to cuneate. Inflorescences paniculately corymbose, few- or several-flowered; bracts coriaceous, caducous. Calyx coriaceous, biseriate, < 1 cm in diameter; lobes orbicular, glabrous or tuberculate on back, hyaline at margin, outer 6-9 mm long, inner 12-16 mm long; petals white, coriaceous, glabrous, oblong to obovate, not clawed, 2-3 cm long; stamens numerous, sometimes exceeding 100; filaments glabrous, 3.5-5 cm long; anthers 2-4 mm long. Fruiting pedicels stout, greatly expanded below receptacle, 1.5-3 cm long; fruits elliptic to oblong or obovate, terete, glabrous, not torulose, pendulous, irregularly rupturing, 3-6 cm long, 1.5-3 cm broad; gynophore 5-9 cm long; seeds ovate, ca. 7 mm long.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Dominica.

COMMON NAMES: Burro, burro blanco.

NOTES: Plants of dry thickets and woodlands at lower elevations. No material of *Capparis amplissima* has been seen from our area. The single record for the species from Dominica was reported by Urban in his original description of *C. portoricensis*.

Capparis baducca L., Sp. Pl. 1: 504. 1753.

- Type: America, a specimen from Hortus Cliffortianus (BM).

Syn.: *Capparis frondosa* Jacq., Enum. Syst. Pl. 24. 1760. (Type: Cartagena, Colombia, Jacq., Select. Stirp. Amer. Hist. t. 104. 1763.)

Capparis commutata Sprengel, Neue Endt. 3: 57. 1822. (Type: Guadeloupe and Martinique.)

Capparis cuneata DC., Prodr. 1: 249. 1824. (Type: Carribean Is. (Banks Herb., BM).)

Capparidastrum baducca (L.) Hutch., Gen. Fl. Pl. 2: 310. 1967.

Capparis cynophallophora L. var. *badduca* (L.) Wikström ex Griseb., Pl. Amer. Trop. 15. 1857.

Shrubs or small trees, 1-8 m tall, glabrous throughout. Stipules minute, triangular. Leaves with petioles variable in length, to 6 cm in lower leaves, becoming very short to obsolete in terminal cluster of leaves; blades oblong-elliptic to obovate-elliptic, coriaceous, somewhat prominently veined on both sides, apex acute to abruptly acuminate, base round to subcordate, narrowed,

5-20(30) x 3-9(12) cm. Corymb few- to several-flowered, much shorter than subtending leaf; bracts minute, scaly. Flowers odorless; calyx 5-6 mm in diameter, glabrous; lobes suborbicular, imbricate at base, 1.5-2 mm broad, persistent and often deflexed in fruit; petals obovate, 8-12 x 6-8 mm, sessile, glabrous, greenish to white; stamens numerous; filaments 1-1.5 cm long. Fruiting pedicels 7-17 mm long; fruits glabrous, narrowly oblong, irregularly torulose, 2.5-5(7) cm x 7-11 mm; gynophore 5-10(15) mm long; seeds 5-7 mm broad.

GENERAL DISTRIBUTION: Southern Mexico to northern South America, West Indies.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Martin, St. Barts!, Barbuda! Antigua!, Saba, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe, Marie Galante!, Dominica, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada, Barbados.

COMMON NAMES: Church blossom, mabouya, mabouge, rat-bean, rope, sapo.

NOTE: Plants of woodlands and thickets in moist districts.

• **Capparis cynophallophora** L., Sp. Pl. 1: 504. 1753.

Type: America, a specimen from Hortus Cliffortianus (BM).

• Syn.: *Capparis siliquosa* L., Syst. Nat. ed. 10, 2: 1071. 1759. (Type: Jamaica?, LINN 664.8 p.p.)

Capparis jamaicensis Jacq., Enum. Syst. Pl. 23. 1760. (Type: Jamaica, Jacq., Select. Stirp. Amer. Hist. t. 101. 1763.)

Capparis torulosa Sw., Prodr. 81. 1788. (Type: Jamaica, Swartz s. n. (s).)

Capparis longifolia Sw., Prodr. 81. 1788. (Type: Jamaica, Swartz s. n. (s).)

Capparis emarginata A. Rich., Hist. Phys. Cuba, Pl. Vasc. 78. t. 9. 1841. (Type: Cuba, Sagra (P).)

Capparis gonaïvensis Helwig, Ark. Bot. 22A(10): 10. 1929. (Type: Haiti, Ekman 8483, isotype, GH.)

Quadrella cynophallophora (L.) Hutch., Gen. Fl. Pl. 2: 309. 1967.

Shrubs or trees, 2-15 m tall; branches densely peltate-scaly. Stipules lacking. Leaves with petioles 0.7-3 cm long; blades oblong to elliptic, occasionally obovate or lanceolate, those of upper shoots sometimes narrowly linear, 3-12(15) x 1.2-5(8) cm, sometimes 10-30 cm long and only 0.1-1 cm broad, thick-coriaceous, glabrous and often shiny above, densely silvery or brownish scaly beneath, apex acute or obtuse to acuminate or emarginate, base obtuse to round or cuneate. Inflorescences corymbose, terminal or from axils of upper leaves, densely lepidote throughout; branches and pedicels often angled to strongly flattened. Flowers few to several, fragrant; sepals valvate and forming 4-angled buds, densely brown-scaly outside, tomentose inside, reflexed at anthesis, equal at base, each subtending a nectar gland, 7-12 x 4-5 mm; petals oblong to obovate, 8-15 x 5-8 mm, sessile, densely scaly outside, glabrous at the margins and inside, white to purplish; stamens numerous, long-exserted; filaments usually purplish, glabrous above, pilose and somewhat thickened at base, 2.5-4.5 cm long; anthers 3-5 mm long. Fruiting pedicels angled, arcuate 1-3 cm long; fruits long-cylindrical, strongly torulose, densely brown-scaly, drooping, (3)6-25(50) cm x 5-8(10) mm; gynophore scaly, 1-7.5 cm long; seeds somewhat compressed, embedded in scarlet pulp, 5-6 mm in diameter.

GENERAL DISTRIBUTION: Southern Florida, Central America, West Indies.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba, St. Eustatius!, Montserrat!, Guadeloupe!, La Désirade, Marie Galante!, Dominica, Martinique!, St. Lucia!, St. Vincent, the Grenadines, Barbados!.

COMMON NAMES: Black willow, bois couleuvre, bois mabouge, bois noir, linguán tree, man of war bush, mustard tree.

NOTE: Common on limestone hillsides in the coastal woodlands and thickets. More than a dozen infraspecific taxa, largely based on leaf characters, have been described in this highly variable species. No attempt has been made here to evaluate any of these.

Capparis flexuosa (L.) L., Sp. Pl. ed. 2, 1: 722. 1762.

Basionym: *Morisonia flexuosa* L., Pl. Jamaic. Pug. 14. 1759; Amoen. Acad. 5: 398. 1760. Type: Jamaica, *Browne s. n.* (LINN 664.10).

Syn.: *Capparis eustachiana* Jacq., Enum. Syst. Pl. 23. 1760. (Type: St. Eustatius, *Jacquin s. n.*, n.v.).

Capparis saligna M. Vahl, Symb. Bot. 3: 66. 1794. (Type: St. Croix, *West (c.)*.)

Shrubs or small trees, sometimes vinelike, 2-9 m tall, glabrous throughout. Stipules minute, caducous; axillary glands oblong to subglobose. Leaves with petioles 5-10 mm long, grooved above; blades oblong or elliptic to obovate, sometimes linear or lanceolate, 2-10(15) x 1-6 cm; coriaceous, prominently veined on both sides, apex acute to obtuse or sometimes retuse to emarginate, base rounded to cuneate. Corymbs terminal or in axils of upper leaves. Flowers few to several, fragrant; calyx coriaceous biseriate, > 1 cm in diameter; lobes imbricate, glabrous, hyaline at margins, inner pair larger than outer, (5)7-12 mm long; petals ovate to oblong or obovate, 2-3.5 x 1-2 cm, coriaceous, sessile, white to pink; stamens numerous; filaments white, glabrous above, puberulous at base, (3)5-7 cm long; anthers 3-5 mm long. Fruiting pedicels glabrous, thick, often curved, expanded below receptacle, 1-3 cm long; fruits long-cylindric, often markedly torulose, glabrous, (4)7-15(26) x 1-2 cm; gynophore narrower than pedicel, 3.5-9(14) cm long; seeds oblong to ovoid, embedded in scarlet pulp, 6-16 mm long.

GENERAL DISTRIBUTION: Southern Florida, the West Indies, Central America to central South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, St. Barts!, Antigua!, Saba!, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada, Barbados!.

COMMON NAMES: Bay-leaved caper, bois-couleuvre, bois malouge, caper tree, mostazo, palinguan, rat bean.

NOTE: Mostly in dry limestone coastal thickets and forests.

Capparis hastata Jacq., Enum. Syst. Pl. 23. 1760; Select. Stirp. Amer. Hist. 159. t. 174, f. 56. 1763.

Type: Cartagena, Colombia, *Jacquin s. n.* (BM).

Syn.: *Capparis cynophallophora* L. var. *latifolia* Griseb., Fl. Brit. W. Indian Is. 18. 1859. (Type: Not selected.)

Capparis latifolia (Griseb.) Stahl, Estud. Fl. Puerto-Rico 2: 186. 1884.

Capparis coccolobifolia C. Martius ex Eichler in C. Martius, Fl. Bras. 13(1): 284. 1865. (Syntypes: Antigua, *Crudy*, *Willschägel s. n.* (BR).)

Capparis flexuosa (L.) L. forma *hastata* (Jacq.) Dugand, Caldasia 1(2): 51. 1941.

Capparis flexuosa (L.) L. var. *cordifolia* Kitanov, Ann. Univ. Sofia, Fac. Biol. 66(2): 31. 1971/1972 (1974). (Type: The Grenadines, Tobago Cays, Petit Batteau, A. C. Smith 10150 (sv).)

Shrubs or small trees, 3-10 m tall, glabrous throughout. Stipules scaly, small; axillary glands globose to obovate. Leaves with petioles 0.5-1 cm long, tuberculate, grooved above, usually minutely puberulous; blades elliptic-oblong to broadly ovate to suborbicular, 3-9(11) x 2.5-6(8.5) cm, coriaceous, prominently veined on both sides, apex obtuse or retuse to emarginate, base mostly subcordate. Corymbs terminal, few-flowered; bracts scaly, caducous. Flowers fragrant; calyx cupshaped, > 1 cm in diameter, coriaceous, biseriate, minutely puberulent to glabrous; lobes suborbicular 6-8 mm long, imbricate, inner larger than outer, hyaline at margin; petals obovate or elliptic to oblong, 2-3 x 1-1.5 cm, coriaceous, hyaline at margin, sessile, greenish to white; stamens numerous; filaments glabrous, 4-6(10) cm long. Fruiting pedicels stout, expanded below receptacle, 1.5-4 cm long; fruits narrowly oblong to linear, compressed, not torulose, (5)7-18(25) x 1.5-3 cm; gynophore stout, 4-7 cm long; seeds oval, 12-15 mm long, embedded in red pulp.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Virgin Islands, Trinidad, Curaçao, Colombia, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Broad-leaved caper tree, burro.

NOTES: Plants of dry limestone forests along the coast and inland. Plants of this species are most commonly known as *Capparis coccolobifolia*. However, the earliest valid name for the species is *C. hastata* Jacq. which was described from a Colombian specimen with typically hastate leaves. Dugand (Caldasias 10: 222. 1968) showed that a great deal of variation in leaf morphology can be encountered within the same branch of some plants of *C. hastata*. Hastate-leaved plants appear to be restricted to certain portions of the species range within Colombia only.

Capparis indica (L.) Druce, Bot. Exch. Club Soc. Brit. Isles 3: 415. Feb. 1914.

FIGURE 115.

. Basionym: *Breynia indica* L., Sp. Pl. 1: 503. 1753.

Type: Tropical America, Plum., Pl. Amer. t. 16. 1756. A single specimen in the Linnaean herbarium (LINN 664.9) bearing the name *Capparis breynia* in Linnaeus' handwriting was acquired from Mutis in 1773.

Syn.: *Capparis breynia* L., Syst. Nat. ed. 10, 2: 1071. 1759.

Capparis amygdalifolia Jacq., Enum. Syst. Pl. 24. 1760. (Type: Plum., Pl. Amer. t. 16. 1756.)

Capparis amygdalina Lam., Encycl. 1: 608. 1785. (Type: Antilles, Surian 123 (P-JU).)

Capparis indica (L.) Fawcett & Rendle, J. Bot. 52: 144. June, 1914.

Linnaeobreynia indica (L.) Hutch., Gen. Fl. Pl. 2: 311. 1967.

Shrubs or small trees, 2-10 m tall; bark smooth, grayish; branches angled, densely peltate-scaly. Stipules minute, caducous. Leaves with petioles 3-10(16) mm long, angled, densely brown-scaly; blades narrowly to broadly elliptic or oblong to obovate, rarely lanceolate, (2)4-11 x (1)2-4.5 cm, not coriaceous, apex acute to obtuse, base cuneate to obtuse, stellate-pubescent above when young, becoming glabrous with age, densely silvery-scaly beneath. Corymbs terminal, few-flowered; bracts minute. Flowers fragrant; pedicels flattened, densely scaly; calyx deeply 4-cleft, brown-scaly, 4-6 mm in diameter; lobes 2-3 mm long, open in bud, subulate to narrowly lanceolate or triangular, persistent; petals elliptic to obovate, 7-13 x 4-8 mm, densely tomentose on both sides, subsessile, white; stamens about 16; filaments glabrous above, pilose at base, 1.2-2 cm long; anthers 2-3 mm long. Fruiting pedicels stout, 0.8-2(3) cm long; fruits long-cylindric, torulose, brown-scaly, 4-26 cm x 6-9 mm; gynophore thick, 2-5 cm long; seeds 5-7 mm in diameter, surrounded by scarlet pulp.



FIGURE 115 (left). *Capparis indica*, x 0.3. FIGURE 116 (right). *Cleome gynandra*, x 0.3.

GENERAL DISTRIBUTION: Southern Mexico to northern South America, West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica!, Martinique, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Bois de mèche, bois-puant, linguam, pois à mabou à mabouya, white willow.

NOTE: Coastal thickets and rocky hillsides.

Capparis odoratissima Jacq., Pl. Hort. Schoenbr. 1: 57. t. 110. 1798.

Type: Caracas, Venezuela, Jacq., Pl. Hort. Schoenbr. t. 110.

Syn.: *Quadrella odoratissima* (Jacq.) Hutch., Gen. Fl. Pl. 2: 308. 1967.

Shrubs or small trees, 2-15 m tall, densely peltate-scaly throughout. Stipules minute, caducous. Leaves with petioles 0.5-4 cm long; blades oblong to elliptic or lanceolate to linear, 2-12 x 0.6-5 cm, coriaceous, apex mostly rounded or obtuse, base occasionally retuse or acute, obtuse to cuneate, glabrous and usually shiny above, densely scaly beneath. Inflorescences terminal, corymbosely paniculate, densely scaly, with angled or strongly flattened branches and pedicels; bracts minute, caducous; buds not or slightly angled. Flowers several to many, fragrant; sepals valvate, equal at base, densely silvery-scaly outside, tomentose within, ovate to oblong-elliptic, 4-6 x 2-3 mm, widely spreading to reflexed at anthesis. Petals ovate-elliptic to oblong, 5-8 x 4-6 mm, sessile, densely scaly outside, glabrous at margins and inside, greenish white, usually changing to purplish; stamens numerous, included to slightly exserted; filaments glabrous above, pilose at base, 5-8 mm long. Fruiting pedicels straight, 3-7(10) mm long; fruits erect, oblong-fusiform to cylindrical, somewhat torulose, densely silvery or brown-scaly, 2-12 cm long, sessile or on gynophores to 2 mm long; seeds 1 to 7, embedded in scarlet pulp.

GENERAL DISTRIBUTION: Southern Mexico, Guatemala, El Salvador, Nicaragua, Panama, northern South America, Bonaire, Curaçao, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAME: Olive wood.

CLEOME L.

Cleome L., Sp. Pl. 1: 671. 1753.

Annual to perennial herbs, sometimes suffrutescent, often glandular-pubescent, occasionally glabrous. Leaves palmately compound, 3- to 7-foliolate, sometimes simple. Flowers solitary or usually in terminal, leafy-bracted, racemose inflorescences; sepals free or basally connate, deciduous or persistent; petals

slightly unequal, entire, usually clawed; stamens 6 to 30, rarely 4, sometimes on an androgynophore; filaments sometimes unequal and declinate; receptacle gland present; ovary 1-locular, usually on long gynophore, rarely sessile; ovules numerous; style distinct or obsolete. Capsule siliquiform, 2-valved, dehiscent from persistent replum; seeds more or less folded or coiled, orbicular to reniform, rugose to tuberculate, occasionally smooth, sometimes arillate.

LECTOTYPE SPECIES: *Cleome ornithopodioides* L.

A genus of about 150 species mainly distributed in the tropical and subtropical regions of both hemispheres. See also: H. H. Iltis, *Brittonia* **11**: 123-162. 1959; H. H. Iltis, *Brittonia* **12**: 279-294. 1960.

KEY TO THE SPECIES

1. All leaves simple *C. stenophylla*
1. Most, if not all, leaves palmately compound, 3- to 7-foliolate.
 2. Plants armed with paired stipular prickles at nodes and occasionally with few additional ones along the petioles.
 3. Leaves (3)5- to 7-foliolate; gynophores (1)3-8 cm long in fruit; flowers in terminal racemes *C. spinosa*
 3. Leaves (1)3-foliolate; gynophores 1-8 mm long in fruit; flowers solitary in axils of upper leaves *C. aculeata*
 2. Plants unarmed.
 4. Flowers with conspicuous androgynophore; stipes 1.5-8 cm long, with visible stamen-scars between fruit and receptacle.
 5. Bracts simple; petals often pink, (1.5)2.5-4 cm long; androgynophore much shorter than gynophore *C. speciosa*
 5. Lower bracts always 3-foliolate; petals often white, 1-2 cm long; androgynophore longer than or subequalling gynophore *C. gynandra*
 4. Flowers without distinct androgynophore; stipes 1-12 mm. long, stamen-scars on receptacle or slightly above it.
 6. Flowers in terminal racemes; bracts subulate-setose, caducous; seeds smooth or sparsely tuberculate and smooth between tubercles *C. serrata*
 6. Flowers solitary, borne in axils of upper leaves; seeds prominently transversely rugose or ridged.
 7. Plants glandular-pubescent throughout, distinctly viscid; leaves 3- to 5-foliolate; stamens 12-26, rarely 10 or 8; fruits sessile *C. viscosa*
 7. Plants glabrate to pilose, neither glandular nor viscid; leaves 3-foliolate; stamens 6; fruits short-stipitate; gynophore 4-12 mm long *C. rutidosperma*

***Cleome aculeata* L., Syst. Nat. ed. 12, 3: 232. 1768.**

✓ Type: America (LINN 850.17).

Erect annual herb, diffusely branching above, glandular-pubescent to subglabrous, 2.5-9 dm tall. Leaves 3-foliolate, with paired stipular prickles; petioles 2-7 cm long; leaflets elliptic to obovate or elliptic-ovate, 1.5-7 x 0.6-4 cm, glandular-pubescent, apex obtuse to acute, base usually oblique; uppermost leaves simple, sessile, ovate or elliptic, base obtuse to subcordate. Flowers

solitary, usually in axils of simple leaves; sepals spreading to reflexed, oblong to narrowly lanceolate, 2-6 mm long, puberulent; petals clawed, 4-10 mm long, white; stamens 6; stigma capitate, sessile. Fruiting pedicels slender, divaricate, straight, minutely puberulous, 1-2.5 cm long; capsules linear-cylindric, 2-6.5 x 2.5-5 mm, constricted between seeds; valves glabrous, longitudinally striate; gynophore 1-8 mm long; seeds 2-2.5 mm broad, brown to yellow, strongly transverse-rugose, finely longitudinally striate in between; aril white, attached to cleft.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, Trinidad, South America to Argentina.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Mouzambé aux épines, patte á canard, acaya.

NOTE: Plants of disturbed grounds along seashores and among woods.

Cleome gynandra L., Sp. Pl. 1: 671. 1753.

FIGURE 116.

Type: India, Rheede, Hort. Malab. 9: t. 24. 1689.

Syn.: *Cleome pentaphylla* L., Sp. Pl. ed. 2, 2: 938. 1763. (Type: India (LINN 850.4).)

Gynandropsis pentaphylla (L.) DC., Prodr. 1: 238. 1824.

Gynandropsis gynandra (L.) Briq., Annuaire Conserv. Jard. Bot. Genève 17: 382. 1914.

Erect annual herb, 2-15 dm tall; stems glandular-pubescent, rarely glabrous, unarmed. Stipules lacking. Leaves 5-foliolate, rarely 3- or 7-foliolate, glandular-pubescent to glabrous; petioles 2.5-9 cm long; leaflets obovate to elliptic, sometimes oblanceolate or lanceolate, rarely rhomboidal, 1-7 x 0.5-4 cm, apex acute to short-acuminate, base cuneate to attenuate, entire or denticulate to glandular-ciliate. Racemes 0.5-4 dm long; bracts 3-foliolate, highly reduced and usually passing to simple upward, generally oblanceolate. Sepals lanceolate to elliptic, 3-6 mm long, acuminate, glandular-pubescent or glandular-ciliate to glabrous. Petals clawed, spatulate, 1-2 cm x 2-6 mm, white to pink; stamens on androgynophore, filaments 1-2.5 cm long. Fruiting pedicels divaricate to ascending, straight to slightly curved, 1-3 cm long, puberulent; capsules linear-cylindric, 3-7(10) cm x 3-5 mm; valves conspicuously striate-veined, glandular-puberulent to glabrate; stigma capitate to peltate, subsessile or on a short style; androgynophore 5-25 mm long, slightly longer than or occasionally as long as gynophore, both glabrous; seeds dark brown to black, flattened, 1.2-2 mm broad, strongly transverse-tuberculate or -rugose, longitudinally striate.

GENERAL DISTRIBUTION: Native of the Old World tropics and subtropics, introduced from Africa into the Caribbean region; widely distributed from southeastern United States to Mexico, West Indies, and South America to Brazil.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Martin!, St. Barts, Barbuda, Antigua!, Saba!, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!,

Marie Galante, Les Saintes, Dominica!, Martinique, St. Lucia!, St. Vincent, the Grenadines, Grenada!, Barbados!.

COMMON NAMES: Acaia, acaya à fleurs blanches, akaya blanc, caia, coyers, kaia mouzambe, masambe, mouzambé à fleurs blanches, sambo, small spider flower, white masabee, spider whisp.

NOTE: Weed of waste grounds, fields, roadsides, wet or dry woodlands or wood clearings, and rocky and sandy shores.

Cleome rutidosperma DC., Prodr. 1: 241. 1824.

Type: Sierra Leone, *Smeathman s.n.* (G-DEL).

Syn.: *Cleome ciliata* Schum. & Thonn., Kongel. Danske Vidensk. Selsk. Naturvidensk. Math. Afh. 4: 68. 1829. (Type: Tropical Africa, *Thonning s.n.*)

Erect to procumbent annual herb, subglabrous to sparsely eglandular-pilose, 1-9 dm tall. Leaves 3-foliolate; petioles 0.5-4 cm long; leaflets mostly elliptic to rhomboid-ovate, rarely lanceolate or oblanceolate, 0.5-4 x 0.3-2 cm, apex obtuse to acute or acuminate, base cuneate or sometimes oblique, sparsely pilose to glabrate, minutely ciliate. Flowers solitary in axils of leafy bracts; sepals narrowly lanceolate, acuminate to subcaudate, ciliate, 2-4 mm long; petals clawed, elliptic to oblanceolate, 4-8 mm long, white to lilac; stamens 6; filaments 5-6 mm long. Fruiting pedicels slender, widely spreading, 1.2-3 cm long; capsules linear-cylindric, glabrous, sometimes slightly torulose, prominently longitudinally nerved, attenuate at both ends, 3-7 cm x 3-5 mm; stigma capitate, subsessile or on short style; gynophore 4-12 mm long; seeds slightly flattened, suborbicular, dark brown, strongly transverse-ridged, ridges usually pubescent, longitudinally striate between ridges, 1.4-2 mm broad, cleft with white or brownish aril.

GENERAL DISTRIBUTION: Native of western tropical Africa. Introduced into the West Indies late in the nineteenth century. Florida, Honduras, Panama, Jamaica, Hispaniola, Virgin Islands, Tobago, Trinidad, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts, Montserrat, Guadeloupe!, Dominica!, Martinique, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Mouzambé rampant, petit acaya blanc, consumption weed.

NOTE: This is a common weed of waste places, disturbed grounds, roadsides, fields, and sandy areas inland and along seashores.

Cleome serrata Jacq., Enum. Syst. Pl. 26. 1760; Select. Stirp. Amer. Hist. 190, t. 180, f. 43. 1763.

Type: Cartagena, Colombia, *Jacquin s.n.* (BM).

Syn.: *Cleome polygama* L., Sp. Pl. ed. 2, 2: 939. 1763. (Type: Jamaica, *Browne s.n.* (LINN 850.7).)

Cleome triphylla Descourt., Fl. Méd. Antille, ed. 2, 1: 202, t. 44. 1833. (Type: Descourtilz's plate.)

Unarmed erect annual herb, rarely perennial, 2-10 dm tall, glabrous throughout, sparsely branched above. Stipules lacking. Leaves often 3-foliolate, lower leaves

usually simple; petioles 0.5-7.5 cm long; leaflets mostly lanceolate, occasionally elliptic or ovate, 3-15 x 1-4(6) cm, apex acute to acuminate, base cuneate or rarely obtuse, minutely serrulate, rarely entire. Inflorescences few-flowered, lax, terminal racemes, almost always appearing ebracteate to naked eye; bracts subulate-setose, caducous, often < 1 mm long. Sepals ovate-lanceolate to lanceolate, spreading, glabrous, acute to acuminate, 2-5 mm long; petals short-clawed, usually oblanceolate, 6-10 mm long, white to purple; stamens 6; filaments 5-6 mm long. Fruiting pedicels divaricate to ascending, 1-2.5 cm long; capsules linear-cylindric, glabrous, prominently longitudinally nerved, 4-8.5 cm x 3-5 mm; stigma capitate, sessile; gynophore 1-3 mm long; seeds 1.5-1.7 mm broad, light to dark brown, cochleate-reniform, completely smooth to sparsely tuberculate and smooth between the tubercles.

GENERAL DISTRIBUTION: South Mexico, Central America, South America to Argentina, Hispaniola, Cuba, Jamaica, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica, Martinique.

NOTE: Common in moist or wet thickets, waste places, and pastures.

Cleome speciosa Raf., Fl. Ludov. 86. 1817.

Type: Louisiana, cultivated plant of Mexican origin.

Syn.: *Cleome speciosa* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 84. 1821. (Quarto ed.) (Type: Caucae River near Carthago, Colombia, *Humboldt & Bonpland* 1870 (P).)

Gynandropsis speciosa (Kunth) DC., Prodr. 1: 238. 1824.

Unarmed erect annual herb, 2.5-15 dm tall, glabrous throughout or glandular-pubescent. Stipules lacking. Leaves (3)5- to 7-foliolate; petioles 2-10(12) cm long; leaflets narrowly elliptic to lanceolate, sometimes oblanceolate, (2)4-14(20) x (0.5)2-6 cm, apex acuminate to subcaudate, base cuneate to attenuate, margin minutely serrulate-ciliate to entire. Inflorescences racemes, 0.5-4 dm long; bracts foliaceous, simple, sessile, lanceolate to ovate or orbicular, often cordate at base. Sepals narrowly lanceolate, long-acuminate, 4-6 mm long, glabrous to pilose, usually ciliate, widely spreading to somewhat reflexed, occasionally persistent; petals clawed, oblanceolate to spatulate, 1.5-4 x 0.2-1 cm, claws < 1/2 as long as blades, white to pink or rose-purple; stamens 6 on androgynophore; filaments 2-8 cm long, white to pink or purple. Fruiting pedicels 1.5-4.5 cm long, somewhat thickened and flattened at base, glabrous or pubescent, divaricate; capsules linear-cylindric, 3.5-12 cm x 2.5-4 mm, somewhat torulose, glabrous, longitudinally striate-veined; stigmas bilobed, sessile or on short styles; androgynophores thick, 0.2-1.3 cm long; gynophores slender, (1)3-6.5 cm long; seeds dark brown, 2-3 mm broad, minutely to prominently tuberculate.

GENERAL DISTRIBUTION: Southern Mexico to northern South America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Dominica!, Martinique, St. Lucia!, Barbados.

COMMON NAMES: Acaya à fleurs roses, mouzambé à fleurs roses, ragged robin, volatines preciosos.

NOTES: Plants of open fields, waste places, grasslands, roadsides, moist thickets, and valley walls. It is not possible to determine whether the species is a native in our area or an escape from cultivation.

Rafinesque's name is chosen here instead of the well established *C. speciosa* of Kunth; although the Rafinesque description is somewhat inadequate, it applies as well to *C. speciosa* Kunth. Fournet, like many other authors, has placed the species, along with *C. gynandra*, in *Gynandropsis*. It is clear, however, that this genus is not worth recognizing since it is based solely on the presence of an androgynophore, which is also present but slightly reduced in several other species of *Cleome* (Woodson, Ann. Missouri Bot. Gard. **35**: 83. 1948).

Cleome spinosa Jacq., Enum. Syst. Pl. 26. 1760; Select. Stirp. Amer. Hist. 190. 1763.

Type: Jamaica, *Jacquin s. n.* (BM).

Syn.: *Cleome pungens* Willd., Hort. Berol. t. 18. 1804. (Type: Tropical America, Willdenow's original plate.)

Erect herbs, 0.6-2 m tall, more or less glandular-pubescent, armed; prickles paired and stipular at nodes, rarely present along petioles and below bracts. Leaves 5- to 7-foliolate; petioles 2-9 cm long; leaflets lanceolate to elliptic-lanceolate, 2-9 cm long, glandular-pubescent, apex acuminate or sometimes acute, base cuneate, midrib occasionally aculeolate beneath; upper leaves passing into simple bracts. Flowers long-pedicellate, in 1-4 dm long racemes; bracts ovate to orbicular, rarely lanceolate, sessile to shortly petiolate, apex mostly obtuse, base subcordate. Sepals linear-lanceolate, 6-11 mm long, acuminate, glandular-pubescent, strongly reflexed; petals obovate-spatulate, long-clawed, 1.5-3 cm long, white; stamens 6; filaments usually white, 4-6 cm long, long-exserted. Fruiting pedicels 2-4 cm long, glandular-puberulent, divaricate to ascending, occasionally arcuate; capsules linear-cylindric, 3.5-14 cm x 3-5 mm, sparingly puberulent to glabrous; stigmas capitate, sessile; gynophore (1)3-8 cm long; seeds 1.5-2 mm broad, light to dark brown, minutely to strongly tuberculate, smooth to faintly longitudinally striate between tubercles.

GENERAL DISTRIBUTION: Widely distributed from the United States southward through Mexico, Central America, the West Indies, and South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Caya, grand acaya, grand mouzambé, jasmin del rio, mouzambé, sambo, spider flower, volatines puzantes, wild massambée, tomados marron.

NOTES: Plants growing in sand and gravel along riverbeds, thickets, and open slopes; weedy along roadsides and in waste grounds. The species shows considerable variation in shape and base of bracts, in fruit and gynophore length,

in seed sculpture, in the distribution of nonstipular prickles, and in pubescence. Typical *C. hassleriana* Chodat, recently reported from Jamaica (Adams, 1972), has not yet been collected from the Lesser Antilles. It is so closely related to *C. spinosa* that some authors fail to distinguish between the two. The main characters used to distinguish the former species are the colored petals, acute bracts, and the glabrous ovaries.

Cleome stenophylla Klotzsch ex Urban, Symb. Antill. 4: 251. 1905.

Type: British Guiana, Pirara, Schomburgk 740 (BM).

Erect glabrous annuals, 10-50 cm tall, simple or branching above. Stipules minute, caducous. Leaves simple, with slender petioles 2-8 mm long, jointed with blades; blades narrowly linear to linear-lanceolate, 1-6 x 0.1-0.5 cm, apex acute to long-acuminate, mucronulate, base attenuate, margin entire and revolute or flat. Racemes lax, few-flowered; bracts setaceous, caducous, 1-3 mm long. Sepals oblong to lanceolate, 2-3 mm long, acuminate, erect; petals oblanceolate to narrowly elliptic-oblong, 3-5 mm long, apex obtuse to acute, sessile, yellow; stamens 6; filaments 2-5 mm long. Fruiting pedicels ascending, straight, 2-5 mm long; capsules linear-cylindric, terete to somewhat flattened, 15-40 x 1.5-2.5 mm ascending, not torulose, sessile, finely longitudinally striate-nerved; style 1-2.5 mm long; seeds 1.2-2 mm broad, dark brown, strongly transverse tubercled or ridged.

GENERAL DISTRIBUTION: Puerto Rico, Bonaire, Curaçao, Aruba, Colombia, Venezuela, British Guiana.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Barts!, Barbuda!, Antigua!, Guadeloupe!.

NOTES: Found among grasses in coastal pastures and in open country, rocky hills, and dry woods. The species most closely related to *Cleome stenophylla* is *C. lanceolata* (C. Martius & Zucc.) Iltis. The two are superficially very similar, but the latter has larger flowers, longer flowering portions of the raceme, and some of its filaments are inflated beneath the anthers. Specimens from the Lesser Antilles are often misidentified as *C. procumbens* Jacq., a species endemic to Cuba, Jamaica, and Haiti. It is easily distinguished from our *C. stenophylla* by its flowers that are always borne in the axils of ordinary leaves and by its longer pedicels that are up to 3 cm long.

Cleome viscosa L., Sp. Pl. 2: 672. 1753.

Type: Ceylon, Hermann s. n. (BM).

Syn.: *Cleome icosandra* L., Sp. Pl. 2: 672. 1753. (Type: LINN 850.10.)

Polanisia viscosa (L.) DC., Prodr. 1: 242. 1824.

Polanisia icosandra (L.) Wight & Arn., Prodr. Fl. Ind. 22. 1834.

Erect annuals, (1)2-10(16) dm tall, densely glandular-pubescent, often viscid and aromatic, unarmed. Stipules lacking. Leaves 3- to 5-foliolate; petioles 1-7 cm long; leaflets elliptic to rhomboid or obovate to oblanceolate, (0.6)2-8 x 0.5-3 cm, apex obtuse or acute, base cuneate to attenuate, subsessile, entire to glan-

dular-ciliate at margin. Flowers solitary in axils of upper leaves. Sepals narrowly oblong to lanceolate, 5-10 mm long, acuminate, deciduous; petals obovate to spatulate, base attenuate, 7-14 mm long, yellow; stamens 12-26, free; filaments shorter than petals; styles 2-6 mm long; stigmas capitate. Fruiting pedicels straight, ascending, 0.6-4 cm long; capsules linear-cylindric, terete, 2.5-10 cm x 2-4.5 mm, erect to strongly ascending, straight to slightly curved, broadly sessile, narrowly beaked; valves persistent, dehiscing from apex, prominently longitudinally striate-veined, densely viscid glandular; seeds dark brown, ovoid to suborbicular, slightly flattened, 1.2-1.8 mm broad, strongly transverse-rugose or ridged, sometimes obscurely longitudinally striate.

GENERAL DISTRIBUTION: Native of the Old World tropics, widely naturalized from central United States southward through Central America, the West Indies, and northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda, Antigua!, Saba, St. Eustatius!, St. Kitts!, Nevis, Redonda!, Montserrat, Guadeloupe!, La Désirade!, Marie Galante, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

NOTES: Weed of roadsides, waste grounds, cultivated fields, sandy and rocky seashores. The type specimen of *C. viscosa* was selected from the Linnaean herbarium (LINN 850.11) by Iltis (Brittonia 12: 283. 1960). However, the species was originally based on Hermann's specimen collected from Ceylon which is now at BM. This should be considered the type specimen for the species.

CRATEVA L.

Crateva L., Sp. Pl. 1: 444. 1753.

Shrubs or small trees, glabrous or pubescent; branches with conspicuous pale lenticels. Stipules lacking. Leaves alternate, 3-foliolate, long-petiolate; leaflets entire, usually thin. Inflorescence corymbose, terminal and axillary; corymbs several-flowered, often polygamous. Calyx deeply 4-parted; lobes imbricate in bud, deciduous; petals open in bud, long-unguiculate; disc hemispherical, thick, adnate to calyx tube; stamens 8 to 30, inserted on margin of torus; filaments filiform, long-exserted; ovary borne on long gynophore, ovoid to spherical, 1- to 2-celled, with 2 placentae; ovules numerous, multiseriate; stigmas discoid, sessile. Fruits baccate, indehiscent, globose or ovoid, 1- to 2-celled, borne on long and thickened gynophore; seeds few to many, reniform, shining, surrounded by pulp; testa membranous; cotyledons incumbent-convolute.

LECTOTYPE SPECIES: *Crateva tapia* L.

A genus of about nine species in the tropics of both hemispheres excluding Australia and New Caledonia.

Crateva tapia L., Sp. Pl. 1: 444. 1753.

FIGURE 117.

— Type: Plum., Nov. Pl. Amer. 22, t. 21. 1703.

. Syn.: *Cratava gynandra* L., Sp. Pl. ed. 2, 1: 636. 1762. (Type: Jamaica, *Browne* s. n. (LINN 619.1).)

Trees 5-18 m tall, glabrous throughout; trunk with grayish-brown bark. Leaves 3-foliolate, long-petiolate, deciduous; petioles 2-15 cm long; leaflets with petioles 2-12 mm long; blades elliptic to oblong or ovate, 2.5-25 x 1.5-9 cm, glabrous or puberulent papillose, apex acute to acuminate, base obtuse to cuneate, that of lateral leaflets usually oblique. Inflorescences corymbose, terminal, usually overtopping subtending leaves. Flowers fragrant, long-pedicellate; sepals oblong to elliptic-lanceolate, 3-7 mm long, obtuse to acute; petals long-unguiculate, oblong or elliptic to obovate or oblanceolate, 1-2.5 cm x 1.5-5 mm, clearly veined, white to greenish; stamens variable in number, somewhat unequal, 2-6 cm long, purple; anthers 2-4 mm long, yellow; ovary ovoid borne on long gynophore; stigma sessile. Mature fruiting pedicels often woody, straight, ascending, 3-5.5 cm long; fruits globose or ovoid, 3-6 cm in diameter; gynophore woody, 3-7 cm long; seeds 7-9 mm in diameter.

GENERAL DISTRIBUTION: Southern Mexico and throughout Central America, the West Indies, South America.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Vincent, the Grenadines!, Barbados.

COMMON NAMES: Gally pear, garlic pear tree, grand cosmaya.

NOTE: A tree usually of upper stories, damp or low-lying areas, occasionally on the banks of salt ponds and seashores.

MORISONIA L.

Morisonia L., Sp. Pl. 1: 503. 1753.

Unarmed shrubs or small trees. Leaves alternate, simple, coriaceous, petiolate, entire. Inflorescences corymbose, many-flowered, terminal and axillary. Calyx campanulate to ventricose, 2- to 4-cleft, or irregularly rupturing to 2 lobes, with 4 glands at base within; petals unguiculate, alternating with glands of calyx, obtuse; torus elongate, bearing stamens, lining base of calyx; stamens 6-20; filaments subulate, shorter than petals; anthers oblong; ovary ovoid, on short gynophore, 1-celled, or falsely 4- or 8-celled by meeting of 4 parietal placentae in center; ovules numerous; stigmas discoid, sessile. Fruit a berry, globose, borne on woody gynophore; seeds numerous, surrounded by pulp; testa crustaceous; cotyledons fleshy, foliaceous.

TYPE SPECIES: *Morisonia americana* L.

A small genus of four species distributed in the West Indies, Central America, and South America.

Morisonia americana L., Sp. Pl. 1: 503. 1753.

FIGURE 118.

Type: Tropical America, Plum., Nov. Pl. Amer. 36, t. 23. 1703.

Shrubs or small trees, 2-10 m tall, with sparse to very dense stellate to stellate-

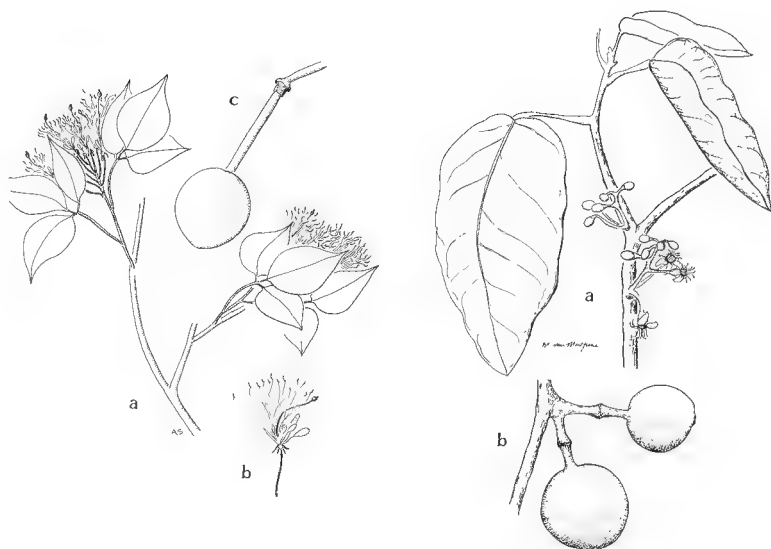


FIGURE 117 (left). *Crateva tapia*: a, flowering branch, x 0.3; b, flower, x 1; c, fruit, x 0.3.

FIGURE 118 (right). *Morisonia americana*: a, flowering branch, x 0.3; b, fruit, x 0.3.

lepidote pubescence; branches and leaves becoming glabrate with age; bark light brown to blackish, smooth to fissured. Leaves with petioles 1-8(12) cm long, thickened at both ends; blades oblong to narrowly oblong, rarely elliptic, 4-25(37) x 2-11(18) cm, coriaceous, apex obtuse or sometimes acute, rarely abruptly subacuminate, base obtuse to subcordate and sometimes distinctly peltate, margin entire, abaxial surface obscurely to distinctly veined. Corymbs lateral, short-stalked, few- to many-flowered. Calyx closed in ovoid bud, bifid by rupturing, 6-10 mm long, densely covered with stellate-lepidote pubescence; petals white, obovate to spatulate, not clawed, 10-16 x 5-6 mm, apex obtuse, densely scaly on exterior, somewhat downy within; stamens glabrous; filaments 10-14 mm long; anthers 2-2.5 mm long; ovary ovoid to subglobose, longitudinally striate, densely stellate-pubescent, borne on long and densely pubescent gynophore; stigma large, discoid to umbilicate. Fruiting pedicels woody, 0.8-3 cm long, thickened at junction with gynophore; fruits globose, brownish, distinctly rough, (2)3-6(8) cm in diameter; fruiting gynophore thick, woody, 4-15 mm long x 4-10 mm thick; seeds 7-10 mm long; testa coriaceous.

GENERAL DISTRIBUTION: Western Mexico, Guatemala, Nicaragua, the West Indies, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St.

Eustatius!, Montserrat!, Guadeloupe!, La Désirade, Marie Galante, Les Saintes!, Dominica!, Martinique, St. Lucia, the Grenadines!

COMMON NAMES: Dog sapodilla, jubie sapodilla, sapote-bâtard, sapote-diable, sapotillier-falaise, wild mespili, wild mesplé.

NOTES: Plants of wooded hillsides and ridges, calcareous seashores. Grisebach (Fl. Brit. W. Indian Is. 19. 1859) described *Morisonia imrayi* from immature material collected by Imray from Dominica (BM). The plant is *Styrax glaber* Sw., a species fairly common in the Lesser Antilles.

MORINGACEAE

MORINGACEAE Dumortier, Anal. Fam. 43, 48. 1829.

Trees with soft wood. Stipules wanting or present as small glands; leaves alternate, 3-pinnate, deciduous. Flowers in axillary panicles, perfect, slightly irregular; sepals 5, unequal, imbricate, reflexed or spreading, slightly united at base; petals 5, unequal, the lower reflexed, slightly united at base; stamens 5, alternating with staminodes, filaments free, filiform; ovary superior, 1-celled with 3 parietal placentae, ovules numerous, style slender, stigma minute, capitate. Fruit an elongated capsule, angled, 3-valved; seeds 3-winged.

TYPE GENUS: *Moringa* Adanson.

A monotypic family of about 20 species of Africa and India.

REFERENCE: B. Verdcourt, Kew Bull. 40: 1-23. 1985.

MORINGA Adanson

Moringa Adanson, Fam. Pl. 2: 318. 1763.

Genus has characters of the family.

TYPE SPECIES: *Guilandina moringa* L. = *Moringa oleifera* Lam.

Moringa oleifera Lam., Encycl. 1: 398. 1785.

FIGURE 119.

Basionym: *Guilandina moringa* L., Sp. Pl. 1: 381. 1753.

Type: Ceylon, *Hermann s.n.* 2: 24 (lectotype, BM).

Syn.: *Moringa pterygosperma* Gaertner, Fruct. Sem. Pl. 2: 314. 1791, nom. illeg.

Tree to 9 m tall, stems fragile, roots with taste and odor of horseradish. Leaves 30-60 cm long, pinnae and leaflets opposite, leaflets numerous, variable in size and shape, oblong to obovate, 1-2.5 cm long, 0.6-1.5 cm wide, apex obtuse, base rounded, entire. Inflorescences panicles, axillary, flowers fragrant; peduncles 5-10 cm long, pedicels 5-10 mm long; sepals linear to linear-oblong, 9-13 mm long, reflexed; petals white with yellow base, pubescent at the base, the largest 14-18 mm long, 6-8 mm wide; stamens 5, the filaments 6 mm long, hairy below; staminodes 6 mm long, pubescent; ovary 3-angled, pubescent, stalk 2-3 mm long,

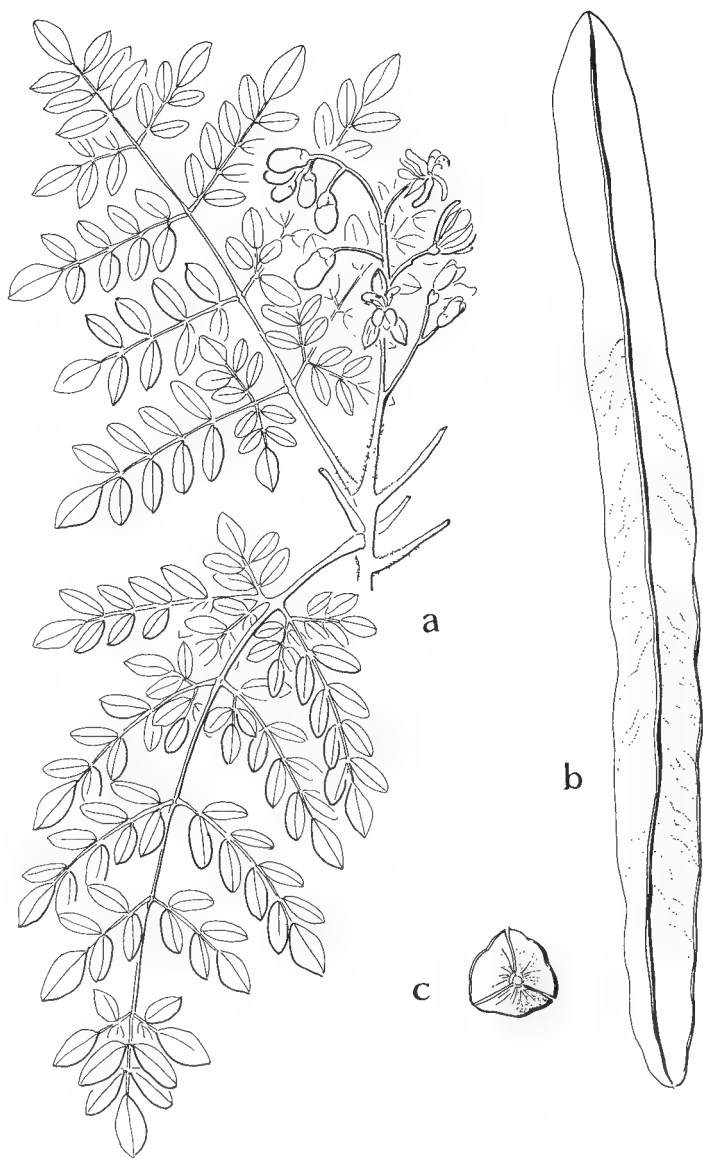


FIGURE 119. *Moringa oleifera*: a, flowering branch, x 0.4; b, fruit cluster, x 0.3; c, fruit end view, x 0.3.

styles 4 mm long. Capsule linear, 20-45 cm long, 2 cm thick, 3-angled, usually pendulous, tan, valves thick, explosively dehiscent, strongly ribbed outside, spongy inside, seeds globular 10 mm in diameter with 3 membranous wings to 2.5-3 cm long.

GENERAL DISTRIBUTION: Probably native to northern India and Pakistan but cultivated and persisting after its introduction into the New World tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts, Antigua!, Saba!, St. Eustatius!, St. Kitts, Montserrat!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Horseradish tree, orselli, maloko, ben aile.

NOTE: Introduced to the West Indies by the French around 1782. Alexander Anderson obtained material for the St. Vincent Botanical Garden from St. Lucia in 1784 and distributed it widely through the British islands.

CRASSULACEAE

CRASSULACEAE DC. in Lam. & DC., Fl. Franc. ed. 3, 4(1): 382. 1805.

Mostly fleshy herbs or semi-shrubby plants. Stipules none; leaves alternate, opposite or whorled. Inflorescence cymose; flowers regular, symmetrical, perfect; calyx 4-toothed or 4-parted, persistent; petals 4, free or connate at base; stamens as many as petals and alternate, or twice as many; ovary superior, of 3 or more free or connate unilocular carpels, each subtended with a scalelike bract, styles subulate or filiform; ovules numerous. Fruit a follicle; seeds many, small.

TYPE GENUS: *Crassula* L.

NOTES: At least two species of *Crassula* have been observed under cultivation in pots or in gardens. They have not been found in flower and no specimens are available for study.

The genus *Bryophyllum* is now generally accepted for the floras of Africa, e.g. R. Fernandez, Flora Zambesiaca, 1983. G. E. Wickens (Kew Bull., **36**: 672. 1982) reported that he is accepting the conclusion of Lauzac-Marchal (C. R., Acad. Sci. Paris **278**. Ser. D. 2505-2508. 1974) in distinguishing *Bryophyllum* and *Kalanchoe*. An acceptable key couplet is:

KEY TO THE GENERA

- Calyx nearly as long as the corolla, becoming inflated and membranous; flowers in a lax panicle, drooping; filaments free and appear to be inserted below the middle of the corolla tube *Bryophyllum*
Calyx much shorter than the corolla, neither inflated nor becoming membranous; flowers numerous in cymes or racemes; filaments connate, adnate with the corolla tube at least to the middle of the tube *Kalanchoe*

The following species of *Kalanchoe* are reported in existing floras or have been reported from botanical gardens: *K. crenata* (Anders.) Haw. as "*K. brasiliensis* Cambess."; *K. daigremontana* Raym.-Hamet & Perrier; *K. integra* (Medikus) Kuntze; *K. laciniata* (L.) DC.; *K. longiflora* Schldl., and *K. mortatii* Raym.-Hamet & Perrier.

BRYOPHYLLUM Salisb.

Bryophyllum Salisb., *Parad. Lond. t. 3*. 1805.

Fleshy herbs. Leaves opposite, simple, lobed or seemingly pinnately compound. Flowers in panicles, drooping or pendulous; calyx inflated, tubular, 4-lobed; corolla gamopetalous, tubular, constricted above the base, 4-lobed; stamens 8 in two series, adnate to the corolla tube; carpels 4, distinct or partially united; ovules many. Follicles 4, seeds many.

TYPE SPECIES: *Bryophyllum calycinum* R. A. Salisbury = *Bryophyllum pinnatum* (Lam.) Oken.

NOTE: *Bryophyllum tubiflorum* Harv. is cultivated in several gardens and usually known by the names "*Kalanchoe tubiflora* (Harv.) Hamet" or "*Kalanchoe verticillata* S. Elliot," both names now placed in synonymy.

Bryophyllum pinnatum (Lam.) Oken, *Allg. Naturgesch.* 3(3): 1966. 1841.

FIGURE 120.

Basionym: *Cotyledon pinnata* Lam., *Encycl.* 2: 141. 1786.

Type: Madagascar, a cultivated plant from the Calcutta Botanic Garden.

Syn.: *Bryophyllum calycinum* Salisb., *Parad. Lond. t. 3*. 1805. (Type: Madagascar, not designated.)

Kalanchoe pinnatum (Lam.) Pers., *Syn. Pl.* 1: 146. 1805.

Perennial fleshy herb, often woody at the base, to 1.5 m tall. Leaves with petioles 2-6 cm long; blades oblong, oval or elliptic, or deeply lobed, the segments often distinct and appearing to be petiolate and pinnately compound, 10-20 cm long, 12.5 cm wide, apex rounded, base cuneate, margin crenate, often reddish, often forming plantlets in the notches. Inflorescence paniculate, to 30 cm high, flowers pendulous, calyx inflated, the tube 2.5-3.5 cm long, lobes acute, yellowish green and speckled with red or brown; corolla tube constricted below the middle, the lobes acute, 2.4-4.5 cm long, dull red-brown. Follicles 10-15 mm long.

GENERAL DISTRIBUTION: Native of Madagascar but widely introduced and cultivated or escaped and persisting in all tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Barbuda!, Antigua!, Saba!, St. Eustatius, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Leaf-of-life, love bush, travel life, kalabana, sweetheart bush, temetic, wonder-of-world, kawakte lezom.



FIGURE 120. *Bryophyllum pinnatum*, x 0.4.

BRUNELLIACEAE

BRUNELLIACEAE Engler in Engler & Prantl, Nat. Pflanzenfam. Nachtr. II-IV 182. 1897.

Trees. Stipules small, deciduous; leaves opposite, pinnately compound. Inflorescences axillary or terminal corymbiform clusters or panicles, flowers dioecious or polygamous; calyx 4- or 5-parted, valvate; corolla wanting; disk 8-10-lobed, adnate to the calyx; staminate flowers with 8-10 stamens, pistils rudimentary; pistillate flowers with 4 or 5 distinct pistils, 1-celled, styles subulate, ovules 2. Fruit a follicle, 2-valved, 1- or 2-seeded.

TYPE GENUS: *Brunellia* Ruiz & Pavon.

A family of one genus and about 45 species of tropical America.

REFERENCE: J. Cuatrecasas, Flora Neotropica Monographs 2: 1-189. 1970.

BRUNELLIA Ruiz & Pavon

Brunellia Ruiz & Pavon, Fl. Peruv. Prodr. 71, t. 12. 1794.

Characters of the family.

TYPE SPECIES: *Brunellia inermis* Ruiz & Pavon.

Brunellia comocladifolia Humb. & Bonpl., Pl. Equin. 1: 211. 1808.

Syn.: *Rhus rufescens* Hamilton, Prodr. Fl. India Occ. 32. 1825. (Type: Jamaica, *Hamilton s.n.*, Herb. Desvoux (P).)

Brunellia comocladifolia Humb. & Bonpl. ssp. **domingensis** Cuatrec.

FIGURE 121.

Tree to 20 m, all parts ferrugineous tomentose. Stipules ovate-lanceolate, 2 mm long, caducous; leaves evenly pinnate or odd pinnate, 15-40 cm long, petioles 7 cm long, leaflets 11-23 oblong-lanceolate or oblong-elliptic, 4-15 cm long, 2.2-6 cm wide, apex acuminate, base rounded and asymmetrical, margin minutely serrate, secondary venation conspicuous below, petiolules 2-3 mm long. Panicles 5.5-8 cm long, pubescent, flowers numerous, calyx 5-cleft, lobes ovate to 2.5 mm. Follicles 3-3.5 mm long; seeds 2.5 mm long, 1.5-2 mm broad, smooth, shiny brown.

GENERAL DISTRIBUTION: Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

COMMON NAME: Bois de houx.

CUNONIACEAE

CUNONIACEAE R. Brown in Flinders, Voy. Terra Austr. 2: 548. 1814.

Shrubs or trees. Leaves opposite, stipulate, simple or compound. Inflorescences racemose, terminal or axillary, flowers small, mostly perfect, sometimes polygamous or dioecious; sepals 4 or 5; petals 4 or 5; stamens as many as petals, twice as many or sometimes more, inserted under the margin of the disk, filaments slender; carpels usually 2, united into a 2-celled ovary or distinct; ovules numerous. Fruit capsular or follicular; seeds numerous, winged or pubescent.

TYPE GENUS: *Cunonia* L., nom. cons.

WEINMANNIA L.

Weinmannia L., Syst. Nat. ed. 10, 2: 1005, 1367. 1759, nom. cons.

Shrubs or trees. Leaves opposite, imparipinnate, the rachis often winged; stipules deciduous. Inflorescence racemose, terminal or axillary; flowers small, perfect, sepals 4 or 5, imbricate; petals 4 or 5; stamens 8-10, filaments filiform, anthers small; ovary superior, 2-celled; styles 2, subulate, persistent, with simple capitate stigmas; ovules numerous, biseriata. Capsule 2-celled, septicidally 2-valved, few to many seeded; seeds oblong or reniform.

TYPE SPECIES: *Weinmannia pinnata* L.

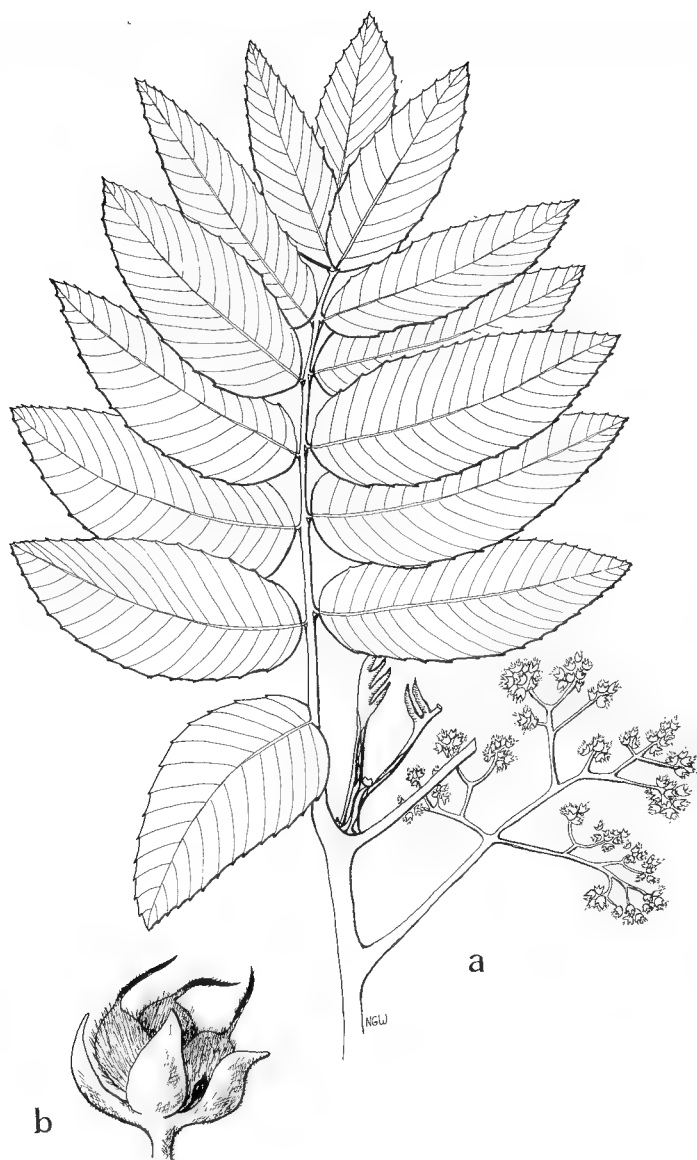


FIGURE 121. *Brunellia comocladifolia* ssp. *domingensis*: a, flowering branch, x 0.6; b, fruit cluster, x 2.

A genus of 130 species of tropical distribution and great polymorphy. See L. Bernardi, *Candollea* **17**: 162. 1961; *Adansonia* n.s. **3**: 404-421. 1963.

Weinmannia pinnata L., Syst. Nat. ed. 10. **2**: 1005, 1367. 1759. FIGURE 122.

Type: Not designated.

Syn.: *Weinmannia hirta* Sw., Prodr. 63. 1788. (Type: Jamaica, *Swartz s.n.* (BM).)

Shrub 2-4 m or tree to 15 m. Leaves imparipinnate, short petioled, leaflets 5-25, oblong to obovate, sessile, 6-25 mm long, 4-12 mm wide, apex obtuse, base narrowed, serrate, glabrous above, pubescent on veins or lower surface. Racemes 3-7 cm long, pedicels filiform 3-4 mm long, subtended by oblong or oval persistent bracts, pubescent; sepals ovate to ovate-lanceolate, 1 mm long, acute, pubescent or glabrate; petals obovate to oblong-obovate, white. Capsule ovoid, glabrous, carpels divergent at maturity, style rigid in fruit; seeds oblong, to 1 mm long, long pilose.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Bois siffleur, tamarin-montagne, bois-tan rouge.

NOTE: A characteristic and almost dominant plant at higher elevations.

ROSACEAE

ROSACEAE A. L. Juss., Gen. Pl. 334. 1789.

Herbs, shrubs or trees, sometimes armed with prickles. Stipules often conspicuous, leaves alternate, simple or compound. Flowers borne singly or in various types of inflorescences, perfect, regular, hypogynous, perigynous or epigynous, epicalyx sometimes present, calyx lobes usually 5, petals 5, stamens numerous, pistils 1 to many, distinct or united or connate with the receptacle. Fruit various types.

TYPE GENUS: *Rosa* L.

REFERENCE: R. A. Howard, *J. Arnold Arbor.* **45**: 279-283. 1964.

CULTIVATED TAXA

Fragaria hybrids, strawberries, are grown with varying degrees of success at higher elevations on several islands.

Raphiolepis indica (L.) Lindl. has been reported in cultivation in the French islands.

Various ornamental hybrid roses are grown with difficulty but prized throughout the Lesser Antilles. *Rosa chinensis* Jacq. forma *viridiflora* Dipp., the "green rose" with monstrous flowers, has been seen in the gardens of St.

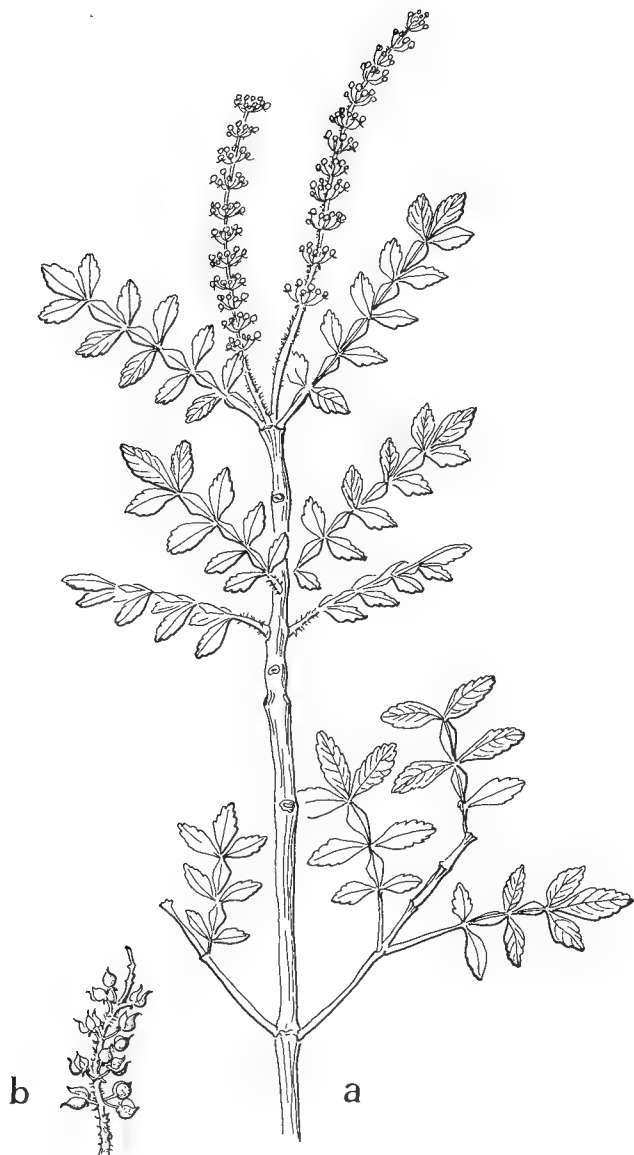


FIGURE 122. *Weinmannia pinnata*: a, flowering branch, x 0.6; b, fruit cluster, x 2.

Claude, Guadeloupe. Fournet noted that *Rosa canina* L. and *R. rubiginosa* L. were locally naturalized.

KEY TO THE GENERA

1. Leaves simple.
 2. Inflorescence racemose; parts glabrous; ovary superior; fruit a drupe *Prunus*
 2. Inflorescence paniculate; parts pubescent; ovary inferior; fruit a pome *Eriobotrya*
1. Leaves pinnately or palmately compound.
 3. Leaves palmately compound, flowers yellow *Potentilla*
 3. Leaves pinnately compound.
 4. Receptacle dome shaped, fruit aggregate or multiple *Rubus*
 4. Receptacle hollow enclosing the achenes *Rosa*

ERIOBOTRYA Lindley

Eriobotrya Lindley, Trans. Linn. Soc. London **13**: 96, 102. 1822.

Evergreen shrubs or small trees. Leaves large, short petioled or nearly sessile, simple with strong pinnate veins ending in teeth, pubescent on lower surface. Inflorescence a terminal panicle, parts pubescent; calyx lobes 5, persisting on top of fruit; petals 5, clawed, white; stamens ca 20; pistil 1, inferior, 2-5-celled, ovules 2. Fruit a pome with 1 or 2 or few large seeds.

TYPE SPECIES: Not designated.

Eriobotrya japonica (Thunb.) Lindley, Trans. Linn. Soc. London **13**: 102. 1822. FIGURE 123.

Basionym: *Mespilus japonica* Thunb., Fl. Jap. 206. 1784.

Type: Japan, Thunberg.

Small dense tree to 7 m, most parts rusty tomentose. Leaves stiff, obovate to elliptic-oblong, 12-25 cm long, 3.5-9 cm wide, apex acute to acuminate, base cuneate, margin with sharp teeth, glossy above, pubescent below. Flowers white. Fruit a pome, pyriform, to 6 cm long, 3-4 cm wide, yellow-orange, rusty pubescent becoming glabrate, seeds large, few.

GENERAL DISTRIBUTION: Native of Japan and China. Now widely cultivated as an ornamental or for the fruit in tropical and subtropical areas. The fruit is very susceptible to infestation and damage by fruit flies.

DISTRIBUTION IN LESSER ANTILLES: Cultivated. Montserrat!, Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Loquat, neflier du japon, prune du japon.



FIGURE 123. *Eriobotrya japonica*: a, flowering branch, x 0.6; b, fruit, x 0.3.

POTENTILLA L.

Potentilla L., Sp. Pl. 1: 495. 1753.

Herbs with trailing stems or erect, often from a stout caudex, or shrubs. Leaves palmately or pinnately compound. Flowers borne singly in the axils of leaves or terminal in few- to many flowered cymes; calyx usually with flat epicalyx bracts; petals 5, rounded; stamens many. Achenes many in a head on a dry nearly flat pubescent or glabrous receptacle.

LECTOTYPE SPECIES: *Potentilla reptans* L.

A genus of 500 species, primarily north temperate and arctic.

Potentilla anglica Laicharding, Veg. Eur. 1: 475. 1790.

Type: Not determined.

Syn.: *Potentilla procumbens* Sibth., Fl. Oxon. 162. 1794. (Type: Not designated.)

Caudex stout, stems slender at first ascending, later trailing and rooting at the nodes. Stipules to 1 cm long, sharply toothed, with lance-ovate acute auricles. Lower leaves with petioles to 3 cm, upper leaves with short petioles to 0.5 cm, blades 3, rarely 5, oblong or oblong-ovate, to 1.5 cm long, 1 cm wide, apex rounded but sharply toothed, base cuneate. Flowers solitary on filiform peduncles, 3-17 cm long, petals yellow, obcordate 5-6 mm long.

GENERAL DISTRIBUTION: Europe.

DISTRIBUTION IN LESSER ANTILLES: Known only from a Belanger collection made in 1857 from Martinique and one by Hodge from Dominica, made in 1940.

NOTE: Probably introduced from Europe or adventitive as a weed but apparently has not persisted.

PRUNUS L.

Prunus L., Sp. Pl. 1: 473. 1753.

Trees or shrubs. Stipules lanceolate, caducous, petioles often with apical glands; blades evergreen or deciduous, coriaceous, simple, entire or toothed, often with glands near the base. Inflorescence racemose or flowers single, sepals 5, small, deciduous; petals 5, deciduous; stamens 15-30, incurved; pistil glabrous or pubescent, ovary sessile, style terminal, ovules 2. Fruit a drupe, ellipsoidal or subdidymous, 1-seeded, endocarp bony.

TYPE SPECIES: *Prunus domestica* L.

A genus primarily of temperate areas and often subdivided. In its widest sense comprises 450 species. Perhaps 12 species are in the American tropics. Peaches, plums and apricots have been tried repeatedly at higher elevations in the Lesser Antilles and persist for a few years.

REFERENCE: E. Koehne in Engler, Bot. Jahrb. Syst. 52: 305-307. 1915.

KEY TO THE SPECIES

- Racemes 2-4-fascicled or branches in an axillary position; receptacle hirsute inside at the base of the pistil; drupe oval to ellipsoid 16-25 mm long, 12-14 mm dia. *P. occidentalis*
 Racemes solitary; receptacle glabrous, drupe broader than long, 12-17 mm by 8-11 mm, subdidymous *P. pleuradenia*

Prunus occidentalis Sw., Prodr. 80. 1788.

Type: Jamaica, Swartz s.n. (s).

Tree, to 15 m, parts glabrous. Stipules 3-4 mm; petioles 1.5 cm; blades ovate-oblong to elliptic, 11-19 cm long, 4-7 cm wide, apex acuminate, base rounded, coriaceous, shiny, midrib not curved, the lamina flat. Racemes 1 to 4 either seemingly fascicled or branched from the base, 4.5-10 cm long, pedicels 4-7 mm, hypanthium turbinate, calyx lobes 5, petals 5, orbicular, 2-3 mm long, white, stamens in two whorls. Drupe ellipsoidal mostly 2 cm long, 1.2-1.4 mm thick, black.

GENERAL DISTRIBUTION: Greater Antilles, Mexico and Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

COMMON NAME: Noyeau.

NOTE: I have seen only *Duss 3855*, a flowering collection. Fournet reported the fruit to be fleshy and tomentose.

Prunus pleuradenia Griseb., Fl. Brit. W. Indian Is. 231. 1860. FIGURE 124.

Type: Bot. Mag. t. 3141. 1832.

Syn.: *Cerasus sphaerocarpa* Hooker, Bot. Mag. 59: t. 3141. 1832, not Loisel. 1760.

Prunus dussii Krug & Urban in Duss, Fl. Phan. Antill. Franc. 259. 1897; Urban, Symb. Antill. 5: 350. 1907. (Syntypes: Martinique, *Duss 1907*; Guadeloupe, *Duss 2731*.)

Prunus acutissima Urban, Symb. Antill. 5: 349, 350. 1907. (Type: Guadeloupe, *Duss 4002*.)

Tree, to 10 m. Stipules lanceolate-linear 5 mm long; petioles 10-15 mm; blades elliptic-lanceolate to ovate-lanceolate, 8-11 cm long, 2.5-3.5 cm wide, apex acute to acuminate, base obtuse, margin entire, midrib commonly curved and part or all of blade noticeably folded; inflorescence 2-3 cm long, pedicels 3-4 mm long, petals 3-4 mm long, stamens 15, of two lengths, hypanthium glabrous inside, 2 mm long; pistil glabrous, styles 2-lobed, 2.5 mm long. Fruit subdidymous, black, to 17 mm wide, 11 mm high, 11 mm thick, styler base persistent.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts, Guadeloupe!, Dominica, Martinique!, St. Vincent!, Grenada!.

COMMON NAME: Amandier-montagne.

NOTES: *Prunus pleuradenia* Griseb. is a new name for *Cerasus sphaerocarpa* Hooker, not Loisel. Most recent publications have considered this a synonym of *Prunus sphaerocarpa* Sw. (= *Prunus myrtifolia* (L.) Urban). Hooker stated that the original drawing was supplied by Lansdown Guilding of St. Vincent. It is clearly drawn from fresh material. Several figures of the Botanical Magazine plate appear on a sheet with a specimen from St. Vincent, *Guilding s.n.* (K). The plant is listed in Guilding's "An Account of the Botanic Garden in the Island of St. Vincent" (p. 36. 1825) as "*Prunus noyeau*." Hooker reported Guilding's statement that this plant was used to make "noyau." Alexander Anderson must be credited with the introduction of this plant to the St. Vincent botanical garden where Guilding drew and collected. In his unpublished *Hortus Anderson* indicated that the plant occurs on Martinique and Grenada and that he introduced it from the latter island. He also tells that the French made noyau by distillation of the fruit and of branches with leaves. A flowering specimen of this species was later collected by Broadway on Grenada and was possibly under cultivation. It has not been recollected on St. Vincent.

Prunus myrtifolia (L.) Urban was attributed by Koehne to St. Eustatius (*Boldingh 272aB*) and St. Kitts (*Britton & Cowell 647*). The Boldingh collection has not been seen and a specimen of *Britton & Cowell 647* was sterile. This is a small-leaved species of the Greater Antilles, typified by material from Jamaica. The fruits are also small and spherical. No material has been seen from the Lesser Antilles.



FIGURE 124 (left). *Prunus pleuradenia*: a, flowering branch, x 0.3; b, bilobed fruit, x 0.3.

FIGURE 125 (right). *Rubus rosifolius*: flowering branch, x 0.3.

RUBUS L.

Rubus L., Sp. Pl. 1: 492. 1753.

Prickly shrubs with arching canes from horizontal rhizomes. Stipules conspicuous, generally adnate to the petiole, leaves variously compound. Inflorescence panicles, or corymbs, terminal or axillary; receptacle flat, depressed or conical, sepals persistent, petals white, stamens numerous, pistils numerous, ovules 2; fruit multiple, of drupaceous achenes, crowded on a dry receptacle.

LECTOTYPE SPECIES: *Rubus fruticosus* L.

A complex genus of 250-3000 "species" mostly of temperate areas. Additional species such as *Rubus ellipticus* and *Rubus racemosus* have been introduced at experiment stations and on other islands have escaped.

KEY TO THE SPECIES

- 1. Leaves 3-foliolate; fruit black *R. ferrugineus*
- 1. Leaves pinnately compound; fruit red.
 - 2. Flowers single *R. rosifolius*
 - 2. Flowers double *R. coronarius*

Rubus coronarius (Sims) Sweet, Hort. Brit. 144. 1827.

Basionym: *Rubus rosaefolius* Sm. var. *coronarius* Sims, Bot. Mag. t. 1783. 1815.

Type: Bot. Mag. t. 1783. 1815.

Syn.: *Rubus rosaefolius* Sm. f. *coronarius* (Sims) Focke, Bibl. Bot. 72: 155. 1911.

Erect plant, canes to 1 m, prickles many. Petioles 3-7 cm long, armed at the base with sharp prickles; leaves pinnate, leaflets (3, 5) 7 (9), lanceolate, 4-6 cm, long, 1-2 cm wide, margin closely doubly serrate. Flowers solitary on lateral short shoots, white, polypetalous 3-5 cm dia., commonly sterile.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, Brazil, Asia.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts, Montserrat!, Guadeloupe, Dominica, Martinique, St. Vincent.

NOTE: The origin of this double form is unknown. L. H. Bailey (Gentes Herb. 6: 327. 1944) felt *R. rosifolius* and *R. coronarius* were distinctive and unrelated taxa. The appearance of the plants in the field is quite different and a status as a variety or forma of *R. rosifolius* is unacceptable.

Rubus ferrugineus Wikström, Kongl. Svenska. Vetenskapsakad. Handl. 1827: 68. 1828.

Type: Guadeloupe, Forsstrom.

Syn.: *Rubus jamaicensis* authors for Lesser Antilles, not L.

Archiving shrub or with long trailing primocanes, pilose. Stipules linear, to 3 mm long; petioles 3-4 cm long, conspicuously armed with recurved prickles;

leaflets 3, oblong-ovate 5.5-8.5 cm long, 3-4.5 cm wide, the terminal leaflet larger, apex short acuminate, base rounded, margin evenly serrate, concolorous. Inflorescence a terminal panicle, corolla white, fruit black.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Guadeloupe!.

Rubus rosifolius J. E. Smith, Plant Ic. Ined. 3: 60. 1791.

FIGURE 125.

Type: Mauritius, *Commerson s.n.*, LINN-SM 902.63.

Perennial plant with erect canes to 1.5 m, stems pilose to glabrate. Stipules threadlike, 1 cm; petioles 3-4 cm long, leaflets mostly 7, lanceolate to ovate, 2-9 cm long, 1-4 cm wide, acute or acuminate at apex, base rounded, pilose to glabrate, doubly serrate. Flowers solitary or in few-flowered cymes, mostly terminal, petals obovate, white, 1-2 cm long. Fruit elongated, 2-3.5 cm long, bright red.

GENERAL DISTRIBUTION: Native of Southeast Asia, introduced to many tropical areas.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Raspberry, frez, framboisier, fonbwéz.

CHRYSOBALANACEAE

CHRYSOBALANACEAE R. Brown in Tuckey, Narr. Exped. Zaire 433. 1818.

Trees, shrubs. Leaves simple, entire, alternate, often coriaceous, glabrous or with pubescence below; petioles often with 2 lateral glands. Stipules 2, minute to large, caducous or persistent. Inflorescence racemose, paniculate or cymose; flowers bracteate and usually bibracteolate; flowers actinomorphic to zygomorphic, perfect or rarely polygamous, perigynous; receptacle of varied shape and size, often gibbous, lobes 5 imbricate, often unequal, erect or reflexed; disk present; petals 5 or absent, commonly unequal, imbricate, deciduous; stamens 2-100 inserted on margin of disk, in a complete circle or unilateral, all fertile or some staminodal; filaments filiform, free, connate or partly so; sometimes pubescent; ovary usually of 1 carpel, sessile or on short gynophore, pubescent, ovules 1 or 2, style filiform, stigma 3-lobed or truncate. Fruit dry or fleshy drupe, interior often hairy.

TYPE GENUS: *Chrysobalanus* L.

REFERENCE: G. T. Prance, Chrysobalanaceae, Flora Neotropica Monographs 9: 1-409. 1972.

NOTE: *Parinari campestris* Aublet is known from St. Vincent on the basis of a *Caley s.n.* (BM) collection. No longer in cultivation, this was probably from an Anderson introduction to the St. Vincent Botanic Garden.

KEY TO THE GENERA

1. Ovary inserted at or near base of receptacle; flowers actinomorphic.
 2. Stamens exerted and connate in groups; filaments pubescent; endocarp longitudinally ridged; inflorescence cymose or a raceme of cymules *Chrysobalanus*
 2. Stamens included or exerted and with glabrous free filaments; endocarp seldom ridged; inflorescence usually a racemose-panicle rarely a raceme or raceme of cymules or cymose *Licania*
1. Ovary inserted at or near mouth of receptacle; flowers zygomorphic *Hirtella*

CHRYSOBALANUS L.

Chrysobalanus L., Sp. Pl. 1: 513. 1753.

Small trees and shrubs with perfect flowers. Leaf glabrous or with few hairs, usually with 2 glands at base of lamina. Inflorescences terminal or axillary cymules; receptacle cupuliform, interior and exterior puberulous; calyx lobes 5, acute; petals 5, longer than calyx lobes; stamens 12-26, in nearly complete circle; filaments hairy, united at base for short distance; ovary inserted at base of receptacle, densely pilose; carpel unilocular, ovules 2; style pubescent. Fruit small fleshy drupe, epicarp smooth, endocarp hard, thin, with 4-8 longitudinal ridges.

TYPE SPECIES: *Chrysobalanus icaco* L.

KEY TO THE SPECIES

- Leaves orbicular to ovate-elliptic, apex retuse to rounded or minutely and bluntly acuminate; midrib glabrous beneath; stamens 15-25 *C. icaco*
- Leaves elliptic to oblong, apex with acumen, 5-12 mm long; midrib sparsely hirsute on both surfaces; stamens 10-12 *C. cuspidatus*

Chrysobalanus cuspidatus Griseb. ex Duss, Fl. Phan. Antill. Franc. 258. 1897. Grisebach, Fl. Brit. W. Indian Is. 711. 1864, nomen nudum.

Lectotype: Guadeloupe, Duss 3633 (NY).

Syn.: *Licania oligantha* A. C. Smith, J. Arnold Arbor. 28: 333. 1947. (Type: St. Lucia, Beard 492 (A).)

Small tree, young branches pubescent. Stipules subpersistent, lanceolate 5-8 mm long; petioles 3-6 mm long; blades oblong to elliptic, 4-11 cm long, 2-4.5 cm broad, apex with well-developed acumen 5-12 mm long, base rounded to subcuneate, glabrous except on midrib. Inflorescences few-flowered, axillary racemose to 1.5 cm long; calyx lobes broadly ovate; petals 5 exceeding the calyx; stamens 12, filaments pubescent; ovary and style pilose. Fruit obovate, 2.7 cm long, endocarp hard and thin with 5-7 longitudinal ridges.

REFERENCE: R. A. Howard, J. Arnold Arbor. **45**: 279. 1964.

GENERAL DISTRIBUTION: Leeward and Windward Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

COMMON NAMES: Icaque grand-bois, icaque montagne, zicaque-montagne, tuer mois un fois.

Chrysobalanus icaco L., Sp. Pl. **1**: 513. 1753.

FIGURE 126.

Type: Not designated.

Syn.: *Chrysobalanus pellocarpus* G. F. W. Meyer, Prim. Fl. Esseq. 193. 1818. (Type: Guyana, *Herb. Meyer 51* (holotype, GOET).)

Chrysobalanus icaco L. var. *genuinus* Stehlé & Quentin, Fl. Guad. **2**(3): 48. 1949.

Chrysobalanus icaco L. var. *pellocarpa* (G. F. W. Meyer) C. Martius in Fl. Bras. **14**(2): 7. 1867.

Shrub with erect stems or small tree to 5 m, branches glabrous. Stipules triangular, 1-3 mm long, deciduous; petioles 2-4 mm long; blades orbicular to ovate-elliptic, 2-8 cm long, 1.2-6 cm broad, apex rounded, emarginate, or with



FIGURE 126 (left). *Chrysobalanus icaco*, x 0.33. FIGURE 127 (right). *Hirtella triandra*, x 0.33.

short acumen, base subcuneate, glabrous both surfaces. Inflorescences rarely exceeding the leaves, terminal and axillary, cymose; calyx lobes 5, rounded to acute, petals white, glabrous, stamens 12-26, filaments variously fused at base or into clusters, pubescent; ovary pilose. Fruit ovate to obovate, 1.8-5 cm long, white, pink-purple or dark purple-black, varying considerably in fleshiness of mesocarp.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Coco plum, fat pork, zicaque, icaque pomme, icaque blanc, icaque bleue, icaque noir.

HIRTELLA L.

Hirtella L., Sp. Pl. 1: 34. 1753.

Trees or shrubs with perfect flowers. Leaves entire, usually glabrous, petioles eglandular. Inflorescences paniculate or elongate to fasciculate racemes; receptacle campanulate, hollow, glabrous inside at base with retrorse hairs at throat, lined with well-defined disk; calyx lobes acute to rounded, usually reflexed; stamens 3-9, unilateral, staminodes present or absent; filaments much exceeding calyx lobes; ovary 1-locular, inserted laterally at mouth of receptacle, ovules 2, style filiform, exserted. Fruit fleshy drupe, often narrowed at base.

TYPE SPECIES: *Hirtella americana* L.

KEY TO THE SPECIES

Inflorescence 4-8 cm long, erect or spreading, usually shorter than leaves *H. triandra*

Inflorescence 25-50 cm long, pendulous, exceeding the leaves *H. pendula*

NOTES: *Hirtella paniculata* Sw. is attributed to St. Vincent on the basis of collections by Anderson and Guilding (κ) which were from plants in the Botanic Garden, introduced by Anderson. Apparently it is no longer under cultivation.

Hirtella racemosa Lam. is attributed to St. Vincent by Williams (Fl. Trin. 1: 317. 1932), but no specimens have been seen and none was cited from St. Vincent by France.

Hirtella pendula Solander ex Lamarck, Encycl. 3: 134. 1789.

Type: Antilles, Thouin (holotype, P).

Tree to 12 m tall. Stipules 2-4 mm long, linear, puberulous, persistent; petioles 2-4 mm long, terete, tomentellous; blades oblong, 6.5-13.5 cm long, 2.5-4.5 cm broad, apex acuminate, acumen 2-15 mm long, base subcordate, membrana-

ceous-chartaceous, subglabrous. Inflorescence long, pendulous, little-branched terminal panicle 25-55 cm long; receptacle obliquely campanulate, short-tomentellous outside, glabrous within except at throat; calyx lobes rounded, tomentellous both sides; petals 5, white, glabrous; stamens 3, unilateral, filaments long exserted glabrous, purple; ovary inserted near mouth of receptacle, pilose, style hirsute in lower third. Fruit ellipsoid, 2.5 cm long, glabrous; crimson turning purple-black.

GENERAL DISTRIBUTION: Leeward and Windward Islands.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Lucia!.

COMMON NAMES: Icaque-montagne, icaque pendant, pend oreille, pan zówèy.

Hirtella triandra Sw., Prodr. 51. 1788.

FIGURE 127.

Type: West Indies, Swartz (holotype, s; isotype, BM).

Syn.: *Hirtella americana* Jacquin, Select. Stirp. Amer. Hist. 8, t. 8. 1763, not L. (Type: Martinique, not located.)

Tree to 15 m, young branches pubescent. Stipules linear, 2-6 mm terete, puberulous; petioles 1-3 mm terete, puberulent; blades oblong to elliptic, 4-14.5 cm long, 2-5.5 cm broad, apex acuminate, acumen 1-18 mm long, base rounded to cuneate, subcoriaceous to membranaceous, hirsute below. Inflorescence terminal and axillary panicles; receptacle campanulate, tomentellous outside, glabrous within except at throat; calyx lobes acute, puberulous both sides; petals 5, white glabrous; stamens 3, unilateral with short staminodes present, filaments glabrous, long exserted, bluish; ovary inserted at mouth of receptacle, pilose-tomentose. Fruit ellipsoid, 2 cm long, puberulent, dark purple when ripe.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia, St. Vincent!.

COMMON NAMES: Pigeon berry, bois poil, icaque à poils, icaque poilu.

LICANIA Aublet

Licania Aublet, Hist. Pl. Guiane 1: 119, t. 45. 1775.

Syn. *Moquilea* Aublet, Hist. Pl. Guiane 1: 521, t. 208. 1775.

Shrub to large tree. Leaves entire, glabrous above, lanate, puberulent, strigose or glabrous below; petioles eglandular. Inflorescences usually sparsely branched racemes or panicles of cymes; receptacle subglobose to urceolate, interior always pubescent; calyx lobes 5, acute; petals 5 or wanting; stamens 3 and lateral to about 30, filaments free or connate at the base, glabrous, long-exserted or included; ovary inserted near the base of the receptacle, usually pilose; style filiform. Fruit drupaceous, tomentose to glabrous, endocarp bony or woody, verrucose or ridged, pubescent inside.

TYPE SPECIES: *Licania incana* Aublet.

NOTE: *Licania columbarum* Stehlé & Quentin (Fl. Guad. 2(3): 50. 1949), is based on two collections, H. & M. Stehlé 1554 (type) and Stehlé 1952 made of a cultivated tree in a trial garden at Pointe à Pitre, Guadeloupe. The authors noted that the seeds were reported to have come from the large trees in the interior of the island. Fournet (Fl. Ill. Phan. Guad. Mart. 686. 1978) credits the species to Stehlé alone and describes the plant as from wet forests, endemic to Guadeloupe and offers four common names. No supporting specimens have been seen. A very large solitary tree was still present in the Jardin d'Essais in Pointe à Pitre in 1982 and collections from it were promised. The type specimen of Stehlé 1554 (US) is *Terminalia microcarpa* Decne. (Combretaceae), more commonly identified as *Terminalia edulis* Blanco. No data could be located on the details of the probable introduction of this edible fruited plant to the trial garden.

Duss (Fl. Phan. Antill. Franc. 259. 1897) reported that "*Licania pyrifolia* Gr." Duss 153 (NY), from Dominica, had been introduced to Martinique at Pécoul. That collection, however, is *Licania leucosepala* Griseb. Williams (Fl. Trinidad 1: 314. 1932) also attributes *Licania pyrifolia* to Martinique, and Prance (Flora Neotropica Monographs 9: 52. 1972) cited three collections of Belanger and one of Hahn from Martinique, which may also be of cultivated material. Fournet (l.c. 687) reports the plant to be here and there in Martinique, but no collections have been seen.

KEY TO THE SPECIES

- Leaves pale beneath with dense lanate-arachnoid pubescence; petals wanting; stamens
3-5 included *L. ternatensis*
Leaves concolorous, glabrous; petals present; stamens about 30, exerted
..... *L. leucosepala*

Licania leucosepala Griseb., Abh. Königl. Ges. Wiss. Göttingen 7: 198. 1857.

Type: Guadeloupe, *Duchassaing s.n.* (holotype, GOET.).

Small tree, young branches glabrous. Stipules linear, 4 mm long, caducous. Petioles 4-6 mm long, lanate when young, canaliculate; blades oblong to oblong-lanceolate, 6-14 cm long, 2-5 cm broad, apex acuminate with acumen of 4-9 mm, base cuneate to subcuneate, coriaceous, glabrous both surfaces. Inflorescences spreading terminal and axillary panicles, pubescent; receptacle cupuliform-campanulate, brown tomentose outside, villose-tomentose inside; calyx lobes acute, petals 5 sparsely pubescent, ciliate margins; stamens ca. 30, forming complete circle; filaments far exceeding the calyx slightly connate; ovary tomentose; style hirsute to apex. Fruit globose or ellipsoid 3.5-5 cm long.

GENERAL DISTRIBUTION: Trinidad, Tobago, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!.



FIGURE 128. *Licania ternatensis*, x 0.6.

Licania ternatensis Hooker f. ex Duss, Fl. Phan. Antill. Franc. 259. 1897;
Hooker f., Kew Bull. **1893**: 251. 1893, nomen nudum. FIGURE 128.

Type: Guadeloupe, syntypes *Duss 2868, 1903*.

Syn: *Licania hypoleuca* sensu Griseb., Fl. Brit. W. Indian Is. 230. 1860, not Bentham.

Tree to 7 m, young branches puberulous. Stipules 1 mm long, lanceolate, coriaceous, persistent; petioles 3-6 mm long, glabrous; blades ovate-elliptic, 4.5-17 cm long, 2-8 cm broad, apex acuminate, acumen 8-18 mm, base rounded and subconduplicate, glabrous above, lower surface with short gray lanate-arachnoid pubescence. Inflorescence terminal and axillary panicles, flowers in cymules, receptacle campanulate, tomentellous outside and inside, calyx lobes acute, tomentellous both surfaces; petals wanting; stamens 3-5, unilateral, filaments shorter than calyx lobes, free; ovary tomentose, style sparsely pubescent. Fruit pyriform, 2-2.5 cm long, red-brown.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Breaknail, bois de ferre, bois de masse, bois gris, bois diable, bois résolu.

CONNARACEAE

CONNARACEAE R. Brown in Tuckey, Narr. Exped. Zaire 431. 1818.

Trees, shrubs or vines. Leaves estipulate alternate, imparipinnate, leaflets entire. Inflorescence racemes or panicles, flowers small, perfect, regular; calyx 5-lobed or 5-parted, mostly persistent in fruit, imbricate or valvate; petals 5 linear-oblong, free, imbricate; stamens 10, filaments thin, often united at base; pistils 5, free, alternately long and short, pubescent, sessile or stalked, 1-celled; style slender, ovules 2 per locule. Fruit a leathery or woody follicle, seeds usually 1, ariloid at base.

TYPE GENUS: *Connarus* L.

REFERENCE: G. Schellenberg, Pflanzenreich IV **127**: 1-326. 1938.

KEY TO THE GENERA

Fruit sessile; calyx enlarging in fruit; flowers white, glabrous *Rourea*
Fruit stalked; calyx not enlarging in fruit; flowers yellow, red tomentose *Connarus*

CONNARUS L.

Connarus L., Sp. Pl. **2**: 675. 1753.

Trees or shrubs, usually scandent. Leaves leathery. Inflorescence axillary, paniculate; flowers small, 5-parted, not enlarging in fruit, imbricate; petals 5

exceeding the calyx; stamens 10, filaments threadlike, united at the base; carpels 5, usually only one maturing. Follicle stalked, obliquely oblong, leathery, dehiscent, 1-seeded, seed with short aril.

TYPE SPECIES: *Connarus monocarpa* L.

A genus of 12 or more species of tropics of Asia, Africa and the New World.

Connarus lambertii (DC.) Sagot was introduced from Guiana to the Botanical Garden on St. Vincent as *C. guianensis* Lamb. An Anderson collection is at Kew and a subsequent collection by Guilding was cited by Grisebach. The plant has not persisted in cultivation on St. Vincent.

Connarus grandifolius Planchon, *Linnaea* **23**: 432. 1850.

FIGURE 129.

Lectotype: Dominica, *Imray* 254 (K).

Syn.: *Connarus grandiflorus* Duss, *Fl. Phan. Antill. Franc.* 256. 1897, *sphalma*.

Vine, twigs densely red tomentose. Leaves with petioles 3-8 cm long, leaflets 3 or 5, oblong to elliptic or narrowly ovate, 12-24 cm long, 6-10 cm wide, apex obtuse to short acuminate, base obtuse. Inflorescence paniculate, axillary, red tomentose; calyx 3 mm long, lobes lanceolate, acute; petals linear-oblong,



FIGURE 129 (left). *Connarus grandifolius*: a, leaf, x 0.16; b, inflorescence x 0.33; c, fruit, x 0.33. FIGURE 130 (right). *Rourea surinamensis*: a, flowering branch, x 0.33; b, fruit, x 0.33.

exceeding the calyx. Follicles obliquely obovoid, red tomentose becoming glabrate, 3-3.5 cm long, 2 cm wide, beak short incurved, stipe 5-7 mm long; seed oblong 2 cm long, aril yellow, margin fringed.

GENERAL DISTRIBUTION: Restricted to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Lian caco, liane à barriques.

ROUREA Aublet

Rourea Aublet, Hist. Pl. Guiane 1: 467, t. 187. 1775, nom. cons.

Woody vines. Leaves estipulate, imparipinnate, 3-33 foliolate, subchartaceous to coriaceous; petiolule short. Inflorescences paniculate, axillary or terminal, flowers pentamerous; sepals imbricate, orbicular to lanceolate, pubescent to glabrate but usually ciliate; petals oblong to lanceolate, glabrous, white; stamens 10, connate at base, those opposite the petals longer than those opposite the sepals; pistils 5, heterostylous, ovary sessile, ovules 2 per carpel, basal. Calyx accrescent in fruit, persistent; follicle straight or slightly curved, striate; seed 1, ovoid, with yellow or orange arilloid covering the lower half, testa dark, shiny, smooth.

TYPE SPECIES: *Rourea frutescens* Aublet.

A genus of 32 species of the New World tropics.

REFERENCE: E. Forero, Mem. New York Bot. Gard. 26(1): 1-120. 1976.

Rourea surinamensis Miquel, Linnaea 26: 221. 1853.

FIGURE 130.

Type: Surinam, *Kappler* 1969 (U).

Small tree or woody vine. Leaves with 1-7 leaflets, petiole 1-7 cm long, rachis 2.5-20 cm long, blades elliptic 3.5-15 cm long, 2-7 cm wide, apex acuminate, base obtuse, margin revolute. Inflorescence paniculate, axillary or falsely terminal, bracts small, sepals ovate-lanceolate 2 mm long, glabrous outside, tomentose inside, apex barbate, margin ciliate; ovary pilose; fruit 1-2 cm long, glabrous, calyx in fruit 0.5 cm long; seeds oval, 1-1.5 cm long, black, aril yellow-orange.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Trinidad, Guianas, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!, Grenada!.

LEGUMINOSAE

LEGUMINOSAE A. L. Juss., Gen. Pl. 345. 1789.

Trees, shrubs, herbs or vines; variously armed or with glands. Leaves alternate, simple or with 1 to few to many leaflets, pinnately, bipinnately or digitately arranged, stipulate and with stipels. Inflorescences axillary or terminal, mostly

racemose or paniculate, occasionally spicate or the flowers solitary or fascicled; sepals 5, united at least below; petals 5, occasionally fewer, free or variously united; stamens mostly 10, or reduced in number and functionally to few or 1; receptacle usually present; pistil solitary, superior, ovary with 1 to few to many ovules. Fruit dry, only occasionally fleshy, usually dehiscent into 2 valves, these variously twisting, or splitting along 1 suture, or separating transversely into segments or indehiscent; arils often present; seeds often with conspicuous hilum scars, often brightly colored or bicolored, occasionally with a pleurogram.

TYPE GENUS: *Faba* P. Miller.

One of the largest families of flowering plants with approximately 600 genera and 12,000 species, worldwide and abundant in the tropics. Three clearly distinguishable subfamilies are recognized here or by others as families. For useful keys to the various groupings of genera see J. Hutchinson, The genera of flowering plants. Vol. 1, 1964. Leguminales 221-489.

KEY TO THE SUBFAMILIES

1. Flowers regular; petals valvate often connate below to form a tube; stamens as many as the petals or twice as many or numerous, free or united basally into a tube, often colored and long exserted; leaves mostly bipinnately compound, or pinnately compound; seeds commonly with a pleurogram on each face *Mimosoideae*
1. Flowers irregular; petals imbricate; stamens 10 or fewer; leaves mostly pinnately compound, less often bipinnately compound; seeds without a pleurogram.
 2. Adaxial (upper) petal internal and overlapped by lateral petals; flowers not papilionaceous; stamens 10 or fewer, distinct or only slightly connate; leaves bipinnately compound or pinnately compound *Caesalpinioideae* (p. 377)
 2. Adaxial petal external to and overlapping adjacent lateral petals, generally the largest; flowers mostly papilionaceous, 2 lower petals usually partly connate forming a keel; stamens 10, rarely fewer, usually upper one free, rarely united into 2 groups of 5 or all free or all united, filaments usually forming a sheath; leaves mostly compound occasionally palmately compound or unifoliate *Faboideae* (p. 437)

MIMOSOIDEAE

Flowers regular; petals valvate, often connate below to form a tube; stamens as many as the petals or twice as many, or numerous, free or united basally into a tube, often colored and long exserted; leaves mostly bipinnately compound, or pinnately compound; seeds commonly with a pleurogram on each face.

KEY TO THE GENERA

1. Leaves once pinnate, rachis sometimes winged, with glands at the base of the large leaflets; unarmed trees; stamens numerous; pod indehiscent with seeds embedded in a sweet pulp *Inga*
1. Leaves bipinnate.
 2. Unarmed woody climber, some of the leaves ending in tendrils; pods large, with thickened margins, the outer layer of the valves shedding, the inner layers persisting

- as woody covering for the large seeds, breaking into one-seeded units *Entada*
2. Trees, shrubs or herbs, if scandent prickly or with thorns.
 3. Stamens numerous, free or more or less united in a tube.
 4. Stamens distinct or united only at the base; shrubs or trees, unarmed or armed with stipular spines or sometimes scandent and with numerous prickles; leaflets numerous and small; flowers mostly yellow in globose heads or cylindrical spikes *Acacia*
 4. Stamens united in a distinct tube which usually exceeds the corolla.
 5. Stamens mostly red or red and white; legume elastically dehiscent from the apex, compressed, narrowed to the base; unarmed shrubs rarely small trees *Calliandra*
 5. Stamens white; legume not elastically dehiscent from the apex.
 6. Trees with stipular spines; leaves with 1 or rarely 2 pairs of pinnae, each with 1 pair leaflets; pod fleshy, subterete, curved or in a spiral, dehiscent, the valves twisting; seeds with conspicuous aril *Pithecellobium*
 6. Unarmed trees or shrubs; legume compressed.
 7. Pinnae 1 pair, leaflets 1, 3, 5 or rarely 7; flowers in subsessile heads borne below the leaves; pod usually straight, the margins wavy *Zygia*
 7. Pinnae in 2 to several pairs; leaflets 4 to many pairs; inflorescence on green shoots.
 8. Pinnae in 12-18 pairs, leaflets in 40-60 pairs; pods circinnate, 7-12 cm dia., in flat circle, compressed, indehiscent *Enterolobium*
 8. Pinnae in up to 10 pairs; leaflets up to 30 pairs; pods straight or falcate.
 9. Fruit thick, turning dark brown or black, septate and filled with brownish pulp *Samanea*
 9. Fruit thin and papery, neither septate nor filled with pulp.
 10. Fruits dehiscent along one or both sutures ... *Albizia*
 10. Fruits tardily dehiscent, the margins separating from the valves at the styler end or eventually becoming completely free *Lysiloma*
 3. Fertile stamens as many or twice as many as corolla lobes.
 11. Anthers at least in bud with an apical stalked or sessile gland.
 12. Flowers capitate, some of the lower ones sterile with yellow showy staminodes; unarmed herbs; legume flat, stipitate, oblong .. *Neptunia*
 12. Flowers spicate or racemose; trees or shrubs.
 13. Upper flowers of spike perfect, yellow, lower ones staminate or neutral with pink-purple filaments; legume contorted, indehiscent; armed with spines *Dichrostachys*
 13. Flowers perfect or rarely polygamous, all yellow or white.
 14. Trees armed with spines; pinnae 1 (2) pair(s), leaflets 12-20 pairs; legume thick, indehiscent, septate between the seeds, seeds brown *Prosopis*
 14. Unarmed trees, pinnae 3-5 pairs, leaflets 11-21; legume compressed, dehiscent, the valves twisting, seeds scarlet *Adenanthera*
 11. Anthers without apical glands; inflorescences capitate.

15. Valves separating from the persistent ring-like margins; breaking into 1-seeded units; herbs or shrubs.
 16. Legume flat, not beaked *Mimosa*
 16. Legume subtetragonal or subterete, conspicuously beaked *Schrankia*
15. Legume dehiscent along the margin, unarmed shrubs, herbs or small trees.
 17. Herbs or low shrubs; flower heads with 6-10 flowers; fruit stipitate, linear, seeds oblique or angled in fruit *Desmanthus*
 17. Trees or large shrubs; heads with numerous flowers; fruit oblong; seeds transverse in fruit.
 18. Anthers with scattered hairs; seeds ovate to oblong *Leucaena*
 18. Anthers glabrous; seeds suborbicular to elliptic *Anadenanthera*

CULTIVATED TAXA

Parkia pedunculata (Roxb.) Macbr., in a genus easily recognized by the bipinnately compound leaves and the club-shaped inflorescence is cultivated currently in the remnants of the old botanical garden on St. Lucia.

Pentaclethra macroloba (Willd.) Kuntze, with a massive spicate inflorescence and large bipinnate leaves, was introduced into cultivation at the St. Vincent Botanical Garden by Alexander Anderson during a trip to Trinidad and the Guianas. A specimen collected by Guiling (K) is presumably from this tree. Specimens Belanger 88 (P) and 877 (P) were collected in the St. Pierre Botanical Garden around 1860. There are no recent records of its persistence in the Lesser Antilles.

ACACIA Miller

Acacia Miller, Gard. Dict. abr. ed. 4. 1754.

Shrubs or trees, often scandent, armed or unarmed. Leaves bipinnate, usually with a petiolar gland; leaflets small; stipules spiny or inconspicuous. Flowers small, in globose heads or cylindrical spikes, or short racemes, perfect; peduncles solitary and axillary or aggregated in panicles at the ends of branches; sepals usually 5, united or distinct; petals 5 or 4, more or less united; stamens numerous, free or slightly united at the base, exserted, white or yellow. Pod compressed, rarely cylindrical, 2-valved or indehiscent, chartaceous or coriaceous.

LECTOTYPE: *Acacia nilotica* (L.) Delile (*Mimosa nilotica* L.).

The older literature refers to plants of *Acacia arabica*, *A. catechu*, *A. senegal*, *A. sundra* in botanical gardens in the Lesser Antilles. No voucher specimens of any of these have been encountered.

The length of the stipular spines is a variable character in several species. Some plants have only modestly developed spines while others have very long spines in some areas of a branch and much shorter ones in other zones, and often these alternate in what appear to be seasonal growth units.

KEY TO THE SPECIES

1. Plants with conspicuous paired stipular spines.
 2. Inflorescences spicate.
 3. Spikes 3 cm long, to 1 cm thick, flowers condensed; spines large and thick; pinnae 3-8 pairs *A. cornigera*
 3. Spikes elongate, 6-10 cm long, tenuous; spines slender, 1 cm long; pinnae 10-40 pairs *A. polyacantha*
 2. Flowers in globular heads.
 4. Involucel at middle of peduncle; fruit flat, submoniliform laterally compressed between the seeds *A. nilotica*
 4. Involucel subtending the flowers.
 5. Pinnae 10-15 pairs, leaflets 20-30 pairs; legume compressed, densely glandular *A. macracantha*
 5. Pinnae 4-8 pairs; leaflets 10-20 pairs; legume terete, not glandular.
 6. Pod somewhat constricted, generally puberulent, seeds in one row *A. tortuosa*
 6. Pod generally uniform in thickness, glabrous, seeds in two rows *A. farnesiana*
 1. Plants unarmed or armed with prickles only.
 7. Plants unarmed.
 8. Flowers in short racemes or globular heads; legume thin, wrinkled *A. glauca*
 8. Flowers in spikes.
 9. Pinnae 4-6 pairs, leaflets 8-16 pairs, 10-12 mm long, 3-4 mm wide; legume splitting along two sutures, the valves transversely recurved .. *A. muricata*
 9. Pinnae 6-15 pairs, leaflets 30-40 pairs, 3-5 mm long, 1 mm wide; legume usually splitting along one suture *A. scleroxyla*
 7. Plants armed with prickles.
 10. Stipules ovate, 1 cm long, 8 mm wide, foliaceous, long persistent *A. tamarindifolia*
 10. Stipules minute, deciduous.
 11. Midvein of leaflet eccentric, nearly marginal the full length, leaflets 50-75 pairs *A. tenuifolia*
 11. Midvein of leaf medial, leaflets 15-25 pairs *A. retusa*

Acacia cornigera (L.) Willd., Sp. Pl. 4: 1080. 1806.

Basionym: *Mimosa cornigera* L., Sp. Pl. 1: 520. 1753.

Type: Cultivated material from Mexico, Herb. Cliff. 208.4 (BM).

Syn.: *Acacia spadicigera* Schlecht. & Cham., Linnaea 5: 594. 1830. (Type: Vera Cruz, Schiede & Deppe s.n.)

Shrub or small tree to 4 m; branches glabrous. Paired stipular spines large, to 9 cm long, usually hollow and connate at the base; petioles 1 cm with sessile linear to oblong glands; leaves bipinnate, pinnae 2-8 pairs, leaflets 12-30 linear, 5-10 x 3 mm. Inflorescence axillary, peduncle 1-1.5 cm with a basal 4-partite involucre, spikes oblong, 3 cm, flowers condensed. Legume oblong 8 cm long including a prominent beak, 13 mm dia., seeds transverse.

GENERAL DISTRIBUTION: Mexico, Central America, Cuba.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

COMMON NAMES: Acacia cornes à boeuf, acacia barrière.

Acacia farnesiana (L.) Willd., Sp. Pl. 4: 1083. 1806.

Basionym: *Mimosa farnesiana* L., Sp. Pl. 1: 521. 1753.

Lectotype: Aldinus, Exact. Descr. Pl. Romae Hort. Farnesiano 4. 1625 (Ross, Bothalia 11: 471-472. 1975).

Syn.: *Vachellia farnesiana* (L.) Wight & Arn., Prodr. Fl. Ind. 272. 1834.

Shrub or small tree to 6 m, twigs glabrous. Paired stipular spines 0.5-5 cm long, petiole 1-2 cm with small gland, pilose to glabrate, pinnae 2-6 pairs; leaflets 10-25 pairs, linear or linear-oblong, 3-5 mm long, 1-1.2 mm wide, obtuse, ciliate. Peduncle 2-4 cm long, pubescent; flower heads 12 mm dia., bright yellow. Legume turgid, somewhat curved, 4-7 cm long, 1 cm thick, glabrous, seeds 8 mm x 6 mm in 2 rows.

GENERAL DISTRIBUTION: Florida and Gulf Coast, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Sweet cassia, acacia jaune, acacia odorant, zakasya.

Acacia glauca (L.) Moench, Meth. Pl. 466. 1794.

FIGURE 131.

Basionym: *Mimosa glauca* L., Sp. Pl. 1: 520. 1753.

Type: Royen.

Syn.: *Acaciella curassavica* Britton & Killip, J. Wash. Acad. Sci. 24: 47. 1934. (Type: Curaçao, Britton & Shafer 2943 (NY).)

Acacia curassavica (Britton & Killip) Stehlé in Stehlé & Quentin, Fl. Guad. 2(3): 39. 1949.

Shrub to 2 m tall, unarmed, branches sparsely pubescent to glabrate. Stipules linear-lanceolate 2-3 mm long; petioles 2 cm long, normally eglandular; pinnae 5-6 pairs, 3-6 cm long, leaflets 10-30 pairs, broadly oblong or oblong-ovate, 4-8 mm long, 2 mm wide, obtuse at apex, obtusely asymmetrical at base, subglabrous or lightly pubescent. Peduncles axillary, 2 cm long, heads short-racemose to subglobose, pedicels to 1 mm long. Legume oblong 5-6 cm long, 1 cm wide, flat, thin, tapered to a stipitate base, obtuse and apiculate at apex; seeds transverse, oval, 3-5 mm long, 3 mm wide, turgid, brown.

GENERAL DISTRIBUTION: Curaçao.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, St. Vincent!.

COMMON NAMES: Redwood, amourette.

Acacia macracantha Humb. & Bonpl. ex Willd., Sp. Pl. 4: 1080. 1806.

Type: "Amer. meridionali."

Syn.: *Mimosa lutea* Miller, Gard. Dict. ed. 8. 1768. (Type: Houston (BM).)

Acacia lutea (Miller) Britton, Bull. Torrey Bot. Club 16: 327. 1889 (not Leavenworth).

Acacia macracanthoides DC., Prodr. 2: 4463. 1825. (Type: Jamaica, Bertero.)

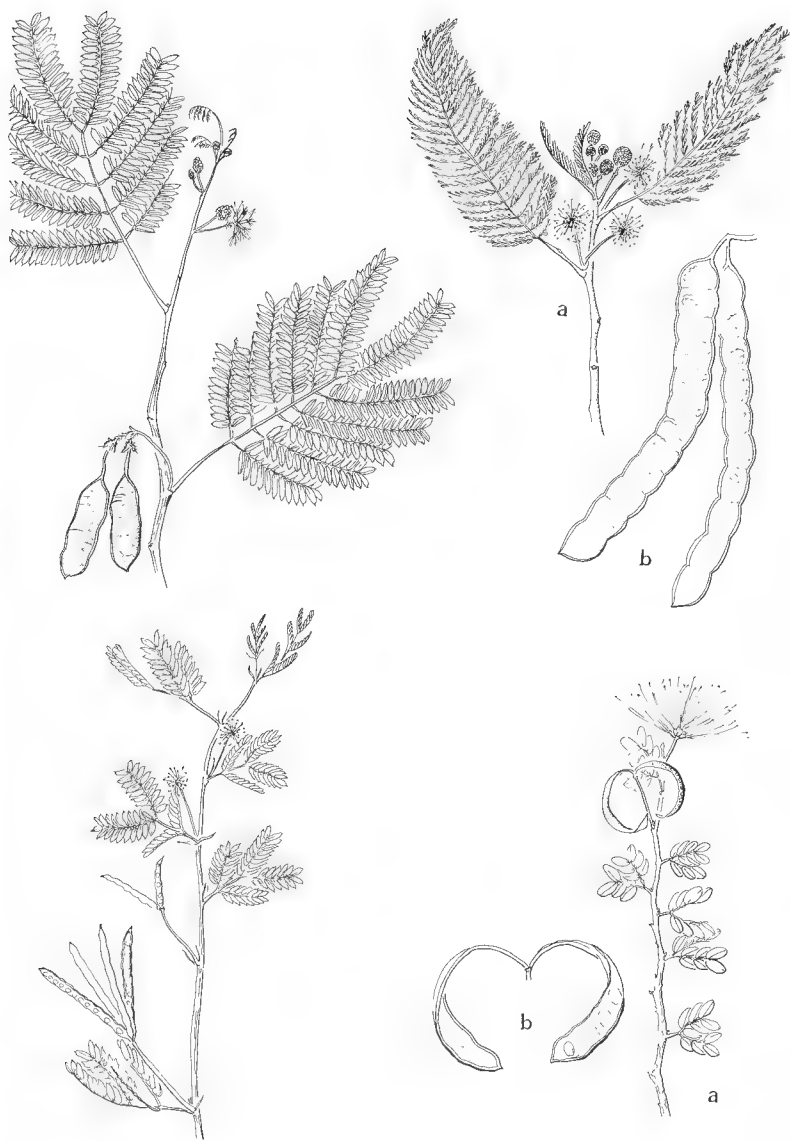


FIGURE 131 (upper left). *Acacia glauca*, x 0.4. FIGURE 132 (upper right). *Anadenanthera peregrina*: a, flowering shoot, x 0.2; b, fruit, x 0.4. FIGURE 133 (lower left). *Desmanthus virgatus*, x 0.4. FIGURE 134 (lower right). *Calliandra slaneae*: a, flowering shoot, x 0.4; b, mature fruit, x 0.4.

Shrub or small tree to 14 m; twigs densely pubescent or glabrate. Spines paired, 0.5-5 cm long; petioles 1-1.2 cm long, bearing an oblong, sessile gland; pinnae 10-15 pairs; leaflets ca. 30 pairs, 3-4 mm long, 1 mm wide, obtuse, ciliate, midrib centric. Peduncles axillary, clustered, 1-2 cm long; heads globose, densely yellow flowered. Legume 6-12 cm long, 7-12 mm wide, flattened or compressed, obtuse, puberulent, usually with many sessile small glands, seeds oval in outline, slightly compressed, 6 mm long, brown.

GENERAL DISTRIBUTION: Greater Antilles, Tortola, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Barbuda!, Antigua!, St. Eustatius!, Guadeloupe!, Martinique!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Briar, acacia savane, acacia piquant.

***Acacia muricata* (L.) Willd., Sp. Pl. 4: 1058. 1806.**

Basionym: *Mimosa muricata* L., Syst. Nat. ed. 10, 2: 1311, 1504. 1759.

Type: Martinique, Plum. Pl. Amer. t. 11. 1755.

Syn.: *Acacia nudiflora* Willd., Sp. Pl. 4: 1058. 1806. (Type: "Danish Amer.")

Acacia rohriana DC., Prodr. 1: 457. 1825. (Type: *von Rohr*.)

Mimosa nigrescens Vahl, Eclog. Amer. 3: 37, t. 29. 1807 (not Labill.). (Type: *von Rohr*, "Amer. meridionali.")

Senegalia muricata (L.) Britton & Rose, N. Amer. Flora 23: 113. 1928.

Unarmed tree 5-8 m tall, twigs finely pubescent. Stipules minute, triangular > 0.5 mm, leaves often 20 cm long, pubescent; petiole 2-3 cm long, sessile gland oblong and a gland often between each pair of pinnae; pinnae 4-6 pairs, leaflets elliptic or oblong, 10-12 mm long, 3-4 mm wide, coriaceous, obtuse at apex, rounded or subcordate at base, glabrous. Inflorescence spicate, spikes slender 7-18 cm long, flowers sessile, cream. Legume broadly linear, 5-15 cm long, 1-2 cm wide, flat, coriaceous, glabrous, brown and transversely white-banded within, dehiscent both sutures, the valves transversely recurved; seeds flat, oblong 15 x 10 mm.

GENERAL DISTRIBUTION: Greater Antilles, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Marie Galante!, Les Saintes!, Dominica!, Martinique!.

COMMON NAMES: Tendre à caillou, tantacayo.

***Acacia nilotica* (L.) Delile, Fl. Aegypt. Ill. 31. 1813.**

Basionym: *Mimosa nilotica* L., Sp. Pl. 1: 521. 1753.

Type: LINN 1228.28.

Syn.: *Mimosa arabica* Lam., Encycl. 1: 19. 1783. (Type: Pluk., Alm. 3, t. 251 f. 1.)

Acacia arabica (Lam.) Willd., Sp. Pl. 4: 1085. 1806.

Acacia nilotica (L.) Delile, subsp. *adansonii* (Guill. & Perrott) Brenan, Kew Bull. 12: 85. 1957.

Shrub or tree to 8 m, twigs pubescent or glabrate. Paired stipular spines, acicular or slender and subulate to 7 cm long; petioles 2-2.5 cm, pinnae 3-8 pairs, leaflets linear-oblong, 5-8 mm long, 1.5 mm wide, midrib centric, obtuse. Pedun-

cles 2 cm long with conspicuous pair of bracts mid-length, flowers yellow in dense globular heads to 1.5 cm dia. Legume linear, 5-15 cm long, 8-15 mm wide submoniliform, short beaked; seeds compressed, subrhombic in outline, 7-8 mm long, 3 mm wide.

GENERAL DISTRIBUTION: An African species introduced to the Greater and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Barbuda!, Antigua!, Montserrat!, Guadeloupe!, Martinique!, St. Lucia!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Cassie, casha, black piquant, acacia de Cayenne.

Acacia polyacantha Willd., Sp. Pl. 4: 1079. 1806.

Type: India Orientali.

Syn.: *Mimosa suma* Roxb., Fl. Ind. 2: 563. 1832, nom. illegit.

Acacia suma (Roxb.) Ham. ex Voigt, Hort. Suburb. Calcutt. 260. 1845.

Senegalia suma (Roxb.) Britton & Rose, N. Amer. Flora 23: 113. 1928.

Acacia catechu Griseb., Fl. Brit. W. Indian Is. 220. 1860, not Willd.

Tree 10 m tall, twigs pubescent, with pair of small prickles just below the stipules or unarmed. Leaves 20 cm long, petiole 2.5-3 cm long, pubescent, bearing large elliptic gland at the middle; rachis pubescent, with small glands between the pinnae; pinnae 10-40 pairs, leaflets 25-50 pairs, linear, 4-8 mm long, 0.5-0.7 mm wide; acute. Inflorescence tomentulous, spikes slender 6-10 cm long, calyx tomentose. Legume linear-oblong 6-12 cm long, 1-1.8 cm wide, glabrous, subcoriaceous, reticulate veins, pointed, base cuneate commonly long stipitate; seeds 6-10, compressed, orbicular 8-9 mm dia., dark brown, shiny.

GENERAL DISTRIBUTION: Asian introduced elsewhere in the tropics.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, St. Vincent!, Grenada!, Barbados.

Acacia retusa (Jacq.) Howard, J. Arnold Arbor. 54: 459. 1973.

Basionym: *Mimosa retusa* Jacq., Enum. Syst. Pl. 34. 1760; Select. Stirp. Amer. Hist. 267. 1763.

Type: Cartagena, *Jacquin* (BM).

Syn.: *Mimosa paniculata* West, Bidr. St. Croix 239. 1794 (nomen); West ex Vahl, Eclog. Amer. 3: 39. 1809 (not *Acacia paniculata* Willd., 1806).

Acacia westiana DC., Prodr. 2: 464. 1825. (Type: St. Croix, *West*.)

Senegalia westiana (DC.) Britton & Rose, N. Amer. Flora 23(2): 119. 1928.

Acacia guadalupensis DC., Prodr. 2: 464. 1825. (Type: Guadeloupe, *Bertero*.)

Acacia sarmentosa Griseb., Fl. Brit. W. Indian Is. 221. 1860, not Desv., 1814.

Acacia riparia authors, not Kunth, 1824.

Woody vine or slender tree to 7 m tall, slender twigs glabrous tan or yellowish, seemingly 4-angled and armed with 4 rows of recurved black prickles. Stipules linear, 3 mm, caducous; petioles 1-2 cm long, glands saucer-shaped; pinnae 4-12 pairs; leaflets 15-25 pairs, linear to linear-oblong, 4-7 mm long, 1-1.5 mm wide,

midrib slightly acentric, apex acute or obtuse. Inflorescence a panicle of small heads; stamens white. Legume 6-10 cm long, 1-2 cm wide, short stipitate, chartaceous, puberulent, seeds oval 7 mm x 6 mm, flat, dark brown.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Virgin Islands, Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, St. Eustatius, Antigua!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Amourette, fleur d'amour, fleur du bien-aimé.

NOTES: Bentham (Trans. Linn. Soc. London **30**: 528. 1875) accepted *Acacia riparia* Kunth and referred most of the above names to that species. Britton & Rose distinguished *Senegalia westiana* (DC.) Britton & Rose with puberulent legumes and *S. guadalupensis* (DC.) Britton & Rose with glabrous legumes, but did not cite *Acacia riparia* Kunth. Fournet (Fl. Phan. Guad. Mart. 706, 707. 1978) recognized *Acacia riparia* Kunth and *A. guadalupensis* DC. Liogier (Fl. Espan. **3**: 20. 1985) accepted *A. westiana* DC. without citing synonyms. Rudd (Phytologia **33**: 233-234. 1976) examined the type of *Mimosa retusa* Jacq., now lacking fruit, and concluded that the name "*Acacia retusa*, based on material from Cartagena, should be applied to populations from the Caribbean area and Central America. Whether *A. riparia* Kunth, *A. lorentensis* Standl. and *A. tubulifera* Benth. from Peru are synonymous is debatable." A single collection from Grenada, *Eggers 6463*, has legumes pubescent on the complete surface. Other collections from St. Thomas and Puerto Rico are glabrate with some pubescence inside the slightly raised margin of the valves. Both glabrous and puberulent collections have been made on Montserrat. Other collections have glabrous legumes but pubescence elsewhere on the plants.

Acacia scleroxyla Tussac, Fl. Antill. **1**: 146, t. 21. 1808.

Type: Antilles. Tussac, Fl. Antill. t. 21.

Syn.: *Mimosa angustifolia* Lam., Encycl. **1**: 12. 1783. (Type: Dominican Republic.) Not *Acacia angustifolia* (Jacq.) Wendland, 1820.

Senegalia angustifolia (Lam.) Britton & Rose, N. Amer. Flora **23**: 113. 1928.

Acacia tenuifolia (L.) Descourt., Fl. Méd. Antilles **2**: 105, t. 93. 1822 (not Willd.).

Unarmed tree, 6-17 m tall; twigs puberulent becoming glabrate. Stipules minute, caducous; petiole 8 mm long, a sessile oval gland below first pair of pinnae; pinnae 3-15 pairs; leaflets 30-40 pairs, linear, 3-6 mm long, 1 mm wide, midrib acentric, glabrous. Spikes slender, 8-10 cm long. Legume oblong, 10-12 cm long, 12-18 mm wide, glabrous, coriaceous, short stipitate, dehiscent along one suture, seeds flat, oblong-oval 1 cm long, 8 mm wide, brown.

GENERAL DISTRIBUTION: Hispaniola.

DISTRIBUTION IN LESSER ANTILLES: Martinique.

COMMON NAME: *Acacia sauvage*.

Acacia tamarindifolia (L.) Willd., Sp. Pl. 4: 1092. 1806.

Basionym: *Mimosa tamarindifolia* L., Sp. Pl. 1: 523. 1753.

Type: Plum., Pl. Amer. t. 7. 1756.

Syn.: *Senegalia tamarindifolia* (L.) Britton & Rose, N. Amer. Flora 23: 120. 1928.

Senegalia grenadensis Britton & Rose, N. Amer. Flora 23: 120. 1928. (Type: Grenada, Broadway 1808 (NY).)

Vine-like shrub or small tree to 5 m tall, prickly and glabrous. Stipules ovate, 10 mm x 8 mm, foliaceous, acute; petiole 8-11 mm with rachis sometimes prickly, often with glands between the pinnae; pinnae 3-8 pairs; leaflets 10-20 pairs, linear-oblong 1-1.5 cm long, 2.5 mm wide, midvein eccentric, oblique. Flowers in paniced heads, calyx angular, puberulent, corolla glabrous. Legumes 7-14 cm long, 2-2.5 cm wide, glabrous or puberulent, stipitate, mucronate; seeds 7-9, oblong 10 x 6 mm; biconvex, dark brown, shiny.

GENERAL DISTRIBUTION: Lesser Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, the Grenadines!, Grenada!.

COMMON NAMES: Côte-lézard, grand amourette.

- **Acacia tenuifolia** (L.) Willd., Sp. Pl. 4: 1091. 1806.

Basionym: *Mimosa tenuifolia* L., Sp. Pl. 1: 523. 1753.

Type: Trop. Amer. Not determined.

Syn.: *Senegalia tenuifolia* (L.) Britton & Rose, N. Amer. Flora 23: 118. 1928.

Acacia microcephala A. Rich., Ess. Fl. Cub. 1: 469. 1845.

"*Acacia martinicensis* Presl. not Berm. 65. 1844" acc. to Duss.

Acacia paniculata Duss, Fl. Phan. Antill. Franc. 249. 1897, not Willd.

Very prickly climbing vine, twigs puberulent. Stipules linear-lanceolate, to 5 mm, caducous; petiole 2 cm long, prickly, with gland near the middle; pinnae 13-20 pairs, leaflets 50-75 pairs, linear, 3 mm long, 0.5 mm wide, midvein sub-marginal. Inflorescence paniculate, puberulent, flowers capitate. Legume oblong, 7-11 cm long, 2-3 cm broad, short-stipitate, glabrous, strongly margined.

GENERAL DISTRIBUTION: Cuba, Mexico to Costa Rica, Venezuela to Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

COMMON NAMES: Amourette, acacia blanc, pompons blancs.

Acacia tortuosa (L.) Willd., Sp. Pl. 4: 1083. 1806.

Basionym: *Mimosa tortuosa* L., Syst. Nat. ed. 10, ed. 2: 1312. 1759.

Type: Browne, LINN 1228.27.

Syn.: *Poponax tortuosa* (L.) Raf., Sylva Tell. 118. 1838.

Acacia parvifolia Duss, Fl. Phan. Antill. Franc. 251. 1897, not Willd.

Shrub or small tree to 8 m, twigs pilose when young, armed with paired spines 1-4 cm long. Petiole 1, oval sessile gland just below first pair pinnae; pinnae 2-8 pairs, leaflets 10-20 pairs, oblong-linear 4-7 mm long, 1 mm wide, obtuse, ciliate.

Peduncles slender 1.5-3.5 cm long, solitary or clustered, pilose, flower heads 1 cm dia., yellow. Legume narrow 8-14 cm long, 8 mm thick, irregularly constricted between the seeds, puberulent or glabrate; seed ovoid, turgid 4 mm long, 4 mm wide, 3 mm thick.

GENERAL DISTRIBUTION: Florida, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Barbuda!, Antigua!, St. Eustatius!, Montserrat!, Guadeloupe!, Martinique!, Barbados!.

COMMON NAMES: Cossie, Alabama cossy, pompons jaunes.

ADENANTHERA L.

Adenanthera L., Sp. Pl. 1: 384. 1753.

Unarmed trees. Leaves bipinnate with several to many pairs of alternate leaflets. Inflorescences long narrow racemes, axillary, solitary or paired or in terminal clusters; flowers small, perfect; calyx campanulate, 5-toothed; petals 5, united below the middle or almost distinct; stamens 10, distinct except at the base, filaments slender, anthers with a deciduous apical gland; ovary sessile, ovules many, style filiform, stigma small, terminal. Legume linear, compressed but swollen over mature seeds, valves 2, leathery, twisting; seeds suborbicular, compressed, red, shiny.

TYPE SPECIES: *Adenanthera pavonina* L.

A genus of eight species of tropical Asia, Australia, and the Pacific islands.

Adenanthera pavonina L., Sp. Pl. 1: 384. 1753.

FIGURE 135.

Type: Herb. Herm. 2: 30 (BM).

Tree < 15 m, branches glabrous or nearly so. Leaves often 40 cm long, petioles 7-10 cm, stout; pinnae 3-5 pairs; leaflets mostly alternate, 11-21, mostly ovate-elliptic, 1.5-4 x 1-2 cm, thin, apex obtuse, emarginate or apiculate, base asymmetrical. Racemes narrow, erect, 9-26 cm long; pedicels 2.5-6 mm; calyx 1 mm; petals 3 mm long, white to cream-colored. Legume 18-22 x 1.5 cm, dehiscent, the valves twisting strongly, seeds scarlet to orange red, 8 mm broad, glossy.

GENERAL DISTRIBUTION: Widespread in tropical Asia and cultivated and persisting throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Corail végétale, l'église, red sandalwood, arbre à église, graine-régisse, graine rouge, dilmawi, jumbi bead.

NOTE: The flowers often have a strong and foul odor. The seeds are commonly used in necklaces and local handicraft.

ALBIZIA Durazz.

Albizia Durazzini, Mag. Tosc. 3: 11. 1772.

Unarmed trees. Leaves bipinnate, leaflets several to many, petiole and rachis with glands. Inflorescences solitary or in panicles, flowers in round heads or spikelike racemes, perfect or with 1-2 central, apparently staminate flowers larger and of different form; calyx 5-toothed; corolla funnel-shaped or bell-shaped, 5-lobed; stamens many; filaments united below in a slender tube. Legume oblong, straight, flattened, tardily dehiscent, valves thin and papery, seeds usually flattened.

TYPE SPECIES: *Albizia julibrissin* Durazz.

A pantropical genus of 100 to 150 species.

KEY TO THE SPECIES

1. Pinnae 2-4 pairs; leaflets 4-9 pairs, 2-4 cm long, 1.2-1.8 cm wide *A. lebbeck*
1. Pinnae 6-12 pairs; leaflets 13-50 pairs, 5-15 x 1-5 mm.
 2. Legume longitudinally dehiscent.
 3. Leaflets < 50 pairs, 10 x 1 mm; flowers spicate *A. caribaea*
 3. Leaflets < 15 pairs, ca. 4-6 mm wide; flowers umbellate *A. falcata*
 2. Legume indehiscent, at length breaking transversely into segments *A. berteriana*

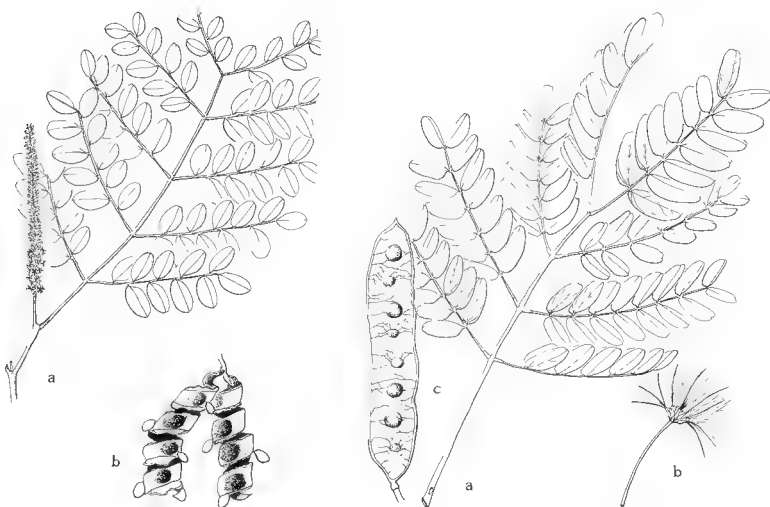


FIGURE 135 (left). *Adenanthera pavonina*: a, flowering shoot, x 0.15; b, mature fruit, x 0.2.

FIGURE 136 (right). *Albizia lebbeck*: a, leaf, x 0.2; b, flowering cluster, x 0.4; c, fruit, x 0.2.

Albizia berteriana (DC.) M. Gómez, Dicc. Bot. 10. 1889.

Basionym: *Acacia berteriana* Balbis ex DC., Prodr. 2: 470. 1825.

Type: Santo Domingo, Bertero.

Syn.: *Pithecolobium berterianum* (DC.) Bentham, London J. Bot. 3: 220. 1844.

Pseudalbizia berteriana (Balbis ex DC.) Britton & Rose, N. Amer. Flora 23: 48. 1928.

Tree < 10 m, all parts puberulent or glabrate. Petioles 5-10 cm, with an oblong gland above the base; pinnae 6-15 pairs with small orbicular gland between the pairs; leaflets 15-40 pairs, linear or linear-oblong, 5-8 x 1.0 mm, midrib eccentric, obtuse or acute at apex, glabrous. Peduncles axillary, heads numerous, small, globose, calyx 1.5 mm, corolla 3 mm, staminal tube included, the free portion 6 mm. Legume straight, 70-120 x 10-17 mm, puberulent, stipitate at base 6-10 mm, seeds suborbicular, compressed.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Jamaica.

DISTRIBUTION IN LESSER ANTILLES: Antigua.

NOTE: Dandy reported collections by *Box 1364* and *Hewlett s.n.* at BM from Perry's Estate on Antigua.

Albizia caribaea (Urban) Britton & Rose, N. Amer. Flora 23: 44. 1928.

Basionym: *Pithecolobium caribaeum* Urban, Symb. Antill. 2: 260. 1900.

Lectotype: St. Vincent, *H. H. & G. W. Smith 902* (K).

Tree < 20 m. Stipules 1-2 mm, linear-subulate; petiole 2-3.5 cm, rachis 8-18 cm, gland thick concave; pinnae 5-9 pairs; leaflets 30-50 pairs, linear to arcuate, 5-9 mm by 0.7-1.3 mm, apex obtuse, base asymmetrical. Inflorescences axillary or terminal, racemose or clustered globose heads, flowers sessile, calyx 1-1.3 mm, shortly dentate, corolla 3.5-4.5 mm, lobes 1/3 the tube, filaments 10 mm, adnate at the base, ovary oblong, lanceolate, ovules 10. Legume broadly linear, base acute, apex rounded apiculate or mucronate, 6-14 x 1.5-2 cm, valves thickened on the margin, seeds 7-10, 1 x 0.5 cm, tan, funicle sigmoid.

GENERAL DISTRIBUTION: Central America, Trinidad, Tobago, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe, St. Vincent!, Grenada!.

COMMON NAME: Tantacayo.

Albizia falcataria (L.) Fosberg, Reinwardtia 7: 88. 1965.

Basionym: *Adenanthera falcataria* L., Sp. Pl. ed. 2, 550. 1762.

Type: Herb. Amboin. 3: t. 111. 1743.

Tree < 15 m, young branches tomentulose, leaf rachis and petiole densely ferruginous tomentose; pinnae 8-10 pairs, rachis with oval gland 2-3 cm from base; leaflets 14-16 pairs, obliquely oblong, lightly falcate, 10-15 x 5 mm, apex acute to subcuspidate. Panicle 10-15 cm, 3- to 5-branched, axes spiciform 1-2 cm long, calyx sericeous, corolla sericeous, 3-4.5 mm long, stamens < 10 mm,

white to green. Legume < 12 x 1-2 cm, stipitate at base, wing 3 mm offset from ventral margin; seeds 12, ellipsoid, olive brown, 7 mm x 3-5 mm.

GENERAL DISTRIBUTION: Native of Indonesia sparingly cultivated in the tropics.

DISTRIBUTION IN LESSER ANTILLES: Frequently cultivated in Guadeloupe.

Albizia lebbeck (L.) Benth, London J. Bot. **3**: 87. 1844. FIGURE 136.

Basionym: *Mimosa lebbeck* L., Sp. Pl. **1**: 516. 1753.

Type: Aegypt, Herb. LINN ex Fawcett & Rendle.

Syn.: *Mimosa speciosa* Jacq., Icon. Pl. Rar. **1**: 19. 1786. Type: *ibid t. 198*.

Tree < 15 m; leaves often 40 cm long, petiole 2-10 cm, with an oblong sessile gland near the base; pinnae 2-4 pairs, leaflets 4-9 pairs, 2-4 x 1-1.7 cm, obliquely oblong or terminal pair obovate, obtuse at apex, uniformly acentric; inflorescence axillary, clustered, peduncles 3-10 cm, umbels subglobose; pedicels pubescent, 2-5 mm, calyx campanulate, < 4 mm; corolla 6 mm; stamens 3 cm, yellowish. Legume straight, broadly linear but narrowed at each end, 15-30 x 2-4.5 cm, glabrous, shining; seeds 7 or 8, about 1.5 cm broad, alternately concave and convex.

GENERAL DISTRIBUTION: Worldwide in the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Eustatius!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Barbados!.

COMMON NAMES: Woman's tongue, shack-shack, bois noir, vieille fille, langue-à-vie-femme.

NOTE: Dry pods hang on the trees for a long time and rattle noisily in the wind.

ANADENANTHERA Speg.

Anadenanthera Spegazzini, Physis (Buenos Aires) **6**: 313. 1923.

Unarmed trees. Leaves large, bipinnate, petioles with gland above the base, rachis eglandular, leaflets numerous, small and narrow. Flowers in globose heads; calyx 5-toothed, glabrous; petals 5, united at the base; stamens 10, anthers not gland-tipped; ovary pubescent to glabrous, sessile or nearly so. Legume compressed, elongate, straight, constricted between seeds but not septate, dehiscent, valves leathery, seeds large, suborbicular, acutely margined.

TYPE SPECIES: *Piptadenia falcata* Benth = *Anadenanthera falcata* (Benth) Speg.

A genus of 2 species known from Brazil.

Anadenanthera peregrina (L.) Speg., Physis (Buenos Aires) **6**: 314. 1923.

FIGURE 132.

Basionym: *Mimosa peregrina* L., Sp. Pl. **1**: 520. 1753.

Type: Hort. Cliff. 109.

Syn.: *Piptadenia peregrina* (L.) Benth. J. Bot. (Hooker) 4: 340. 1841.

Niopa peregrina (L.) Britton & Rose, Addisonia 12: 37. 1927.

Tree < 20 m, twigs and leaves puberulent becoming glabrous. Leaves > 25 cm long, pinnae < 30 pairs or more, leaflets 25 pairs or more, sessile, linear, 2-4 mm long, acute. Inflorescence capitate, 10 mm dia., peduncles slender, 1-3 cm; calyx small, petals white. Legume 80-170 x 10-18 mm; seeds suborbicular, 1 cm dia., shining dark brown or black.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Vincent!, Grenada!.

CALLIANDRA Benth.

Calliandra Benth. J. Bot. (Hooker) 2: 138. 1840, nom. cons.

Syn.: *Anneslia* Salisb., Parad. Lond. Pl. 64. 1907, nom. rejic.

Unarmed small shrubs or trees. Leaves twice compound, eglandular, stipules small but persistent, pinnae 1 to several, leaflets small to large, commonly asymmetric. Inflorescence capitate, axillary, solitary or clustered, flowers few to many in each head, the central flowers often with larger white, pink, red or bicolor stamens and/or staminal tubes; calyx campanulate, corolla funnel-form, tube equalling or exceeding the lobes; stamens numerous, fused below, much exerted; legume compressed, oblanceolate to linear, not septate, dehiscent from the apex, the valves recurving but not twisted, leathery to almost woody, the margins thickened; seeds oval, flat.

TYPE SPECIES: *Gleditsia inermis* L. (type cons.) = *Calliandra inermis* (L.) Druce.

A genus of about 125 species of tropical America.

CULTIVATED SPECIES

Calliandra portoricensis (Jacq.) Benth. (Hahn 243 pp, P), *C. selloi* (Spreng.) Macbr. (Belanger 516, P) and *C. tetragona* Benth. (Hahn 243 pp, P) were once cultivated at the St. Pierre Botanical Garden on Martinique.

Calliandra serjanoides Urban was described based on an unnumbered collection by Duss of a plant once cultivated in the St. Pierre garden. Both the garden and the type specimen (B) have been destroyed and no specimens are known. A collection of Belanger 731 (P) made in the St. Pierre garden in 1860 nearly fits the original description but seems better assigned to *Calliandra falcata* Benth. which was based on material raised from Mexican seed in Mr. Knight's nursery.

KEY TO THE SPECIES

1. Pinnae 4 pairs, leaflets 14 pairs; inflorescences clustered, stamens white ... *C. flavida*
1. Pinnae 1 pair; leaves 1.5 to 10 pairs; inflorescence solitary; stamens red or red and white.
 2. Leaflets 1.5 pairs; stamens white below, red above *C. tergemina*
 2. Leaflets 4-10 pairs.

3. Filaments white at the base, red above; leaves narrowly oblong to linear, acute at the apex; cultivated *C. surinamensis*
3. Filaments all red; leaves broader.
4. Leaflets 3-4 pairs, < 1 cm long, upper surfaces reticulate and shiny when dry *C. slaneae*
4. Leaflets 8-10 pairs, > 1 cm.
5. Filaments exceeding the tube by 3 cm; leaflets large, drying concolorous; cultivated *C. haematocephala*
5. Filaments exceeding the tube by 2 cm or less; leaflets drying darker above *C. purpurea*

Calliandra flavida Urban, Ark. Bot. **24a**: 4. 1931.

Type: Grenada, *Eggers 6226*.

Low subprocumbent shrub. Stipules ovate-lanceolate, 7-9 mm long; petioles 3-8 cm; pinnae 3-4, eglandular; leaflets 28-36, sessile, broadly to rectangularly linear, truncate at the base, apex oblique, unilaterally acute < 20 x 8 mm, puberulent. Inflorescence axillary and terminal, subcorymbose, peduncle 2.5-5 cm long; flowers pale, calyx 2 mm, corolla 3 mm; stamens 15 mm. Legume linear, 3-4 mm stipitate at the base, 10 x 1-1.2 cm.

GENERAL DISTRIBUTION: Venezuela, British Guiana.

DISTRIBUTION IN LESSER ANTILLES: Known only from the type collection from Grenada.

Calliandra haematocephala Hasskarl, Retzia 216. 1855.

Type: From Bolivian material cultivated in Buitenzorg Botanic Garden, *Hasskarl s.n.* (frag., A).

Shrub 1-3 m tall with spreading branches. Stipules 6.5-10 mm; leaves with 1 pair pinnae, each with 7-10 pairs of elliptic to oblong-lanceolate or subfalcate leaflets, each different, 0.5-4.7 x 0.3-1.7 cm, apex obtuse and mucronulate, base obliquely rounded to subcordate; petiole 1-2.5 cm. Peduncle 1-3.5 cm, calyx white to pink, 1.5-2.2 mm, striate; corolla pink with green lobes or white, tube 3.5-5 mm; lobes 3 mm; stamens bright red, 3 cm long. Legume linear-lanceolate 9-10 x 1.5 cm; seeds 5 or 6, oblong, flattened 0.8-1.2 x 0.4-0.6 cm.

GENERAL DISTRIBUTION: Native to Bolivia but widely cultivated in the American tropics.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe, Dominica!, St. Lucia!.

Calliandra purpurea (L.) Bentham, London J. Bot. **3**: 104. 1844.

Basionym: *Mimosa purpurea* L., Sp. Pl. **1**: 517. 1753.

Lectotype: Plum., Nov. Pl. Amer. t. 10, f. 2.

Syn.: *Anneslia purpurea* (L.) Britton, Brooklyn Bot. Gard. Mem. **1**: 50. 1918.

Calliandra purpurea (L.) Benth. var. *dussiana* Stehlé, Bull. Mus. Hist. Nat. (Paris) sér. 2, **18**: 192. 1946. (Type: Martinique, *Duss 1164*.)

Calliandra purpurea (L.) Bentham var. *quentiniana* Stehlé, Bull. Mus. Hist. Nat. (Paris) sér. 2, **18**: 192. 1946. (Type: Guadeloupe, *Stehlé & Quentin 5436*.)

Shrub or small tree < 4 or 5 m, glabrous, short shoots conspicuous with persistent ovate stipules to 4 mm. Petioles 0.5-3 cm, pinnae 1 pair; leaflets 3-8 pairs, elliptic, obovate or ovate, asymmetrical, 6-20 x 3-14 mm, apex rounded and acute or rounded and mucronate. Peduncles axillary, solitary, to 4 cm, heads few-flowered, calyx 2 mm, corolla pale green 6 mm; stamens bright red-purple, to 15 mm. Legume glabrous, 50-80 x 10-13 mm; seeds compressed, oblong, < 10 x 6 mm, brown.

GENERAL DISTRIBUTION: Trinidad, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Les Saintes!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada.

COMMON NAMES: Bois patate, pompon diable, pompon rouge.

NOTE: Dr. Velva Rudd (litt.) kindly pointed out that the captions for *t. 10* of Plumier, Nov. Pl. Amer., are reversed. F. 1 is *Calliandra tergemina* (L.) Benthams, and f. 2 is *Calliandra purpurea* (L.) Benthams.

Calliandra slaneae Howard, Phytologia 61: 3, 4. 1986.

FIGURE 134.

Type: V. *Slane* 541 (holotype, A).

Shrub to 1.3 m, branches spreading to a diameter of over 3 m, short shoots with conspicuous, persistent, ovate-acuminate, coriaceous, striate stipules. Petioles 3 mm long; pinnae 1 pair, rachis 7-12 mm, leaflets 3-4 pairs, basal pair unequal, elliptic-oblong to elliptic-obovate, 7-8 x 3-4 mm, coriaceous, shining, apex obtuse, base obtusely cordate, midrib acentric, one side with 2 conspicuous ascending veins. Inflorescence axillary, peduncles < 1 cm; flowers 25-30, calyx and corolla yellowish-green, staminal tube red, exerted < 7 mm, free portion of filaments 2 cm. Legume < 6 cm x 1-1.2 cm, seeds 6 compressed, oval < 6 x 4 mm, brown.

GENERAL DISTRIBUTION: Endemic to St. Lucia.

Calliandra surinamensis Benthams, London J. Bot. 3: 105. 1844.

Type: Surinam, *Hostmann* 171 (holotype, K).

Shrub or small tree 3-6 m tall with irregular spreading branches. Leaves with 1-3 pairs of pinnae, each with 7-10 pairs leaflets, narrowly ovate, 8-17 x 3-4 mm, apex acute, asymmetrical at base. Flowers in erect heads, to 4 cm long; calyx and corolla yellowish-green, staminal tube white with free parts of filaments red, middle 1 or 2 flowers with staminal tube 4-5 times as long as others. Legumes oblong, < 10.5 cm; seeds elliptic, gray with dense purple-brown spots, < 8.5 mm.

GENERAL DISTRIBUTION: Native to northern South America but cultivated elsewhere in American tropics.

DISTRIBUTION IN LESSER ANTILLES: Cultivated, persisting or escaped. Montserrat!, Guadeloupe!, St. Lucia!, Barbados!.

COMMON NAME: Bwa patate.

Calliandra tergemina (L.) Bentham, London J. Bot. **3**: 96. 1844.

Basionym: *Mimosa tergemina* L., Sp. Pl. **1**: 517. 1753.

Lectotype: Martinique, Plum., Pl. Amer. t. 10, f. 1. 1756.

Syn.: *Inga tergemina* (L.) Willd., Sp. Pl. **4**: 1008. 1806.

Anneslia tergemina (L.) Britton & Rose, N. Amer. Flora **23**: 53. 1928.

Shrub 2 m to small tree, branches slender, glabrous. Stipules lanceolate, 2 mm, acuminate; petioles filiform, 0.5-2 cm; pinnae 1 pair, leaflets 1 or 1.5 pairs, obovate or oblong, reticulate-veined, 1-4.5 cm long, apex rounded; peduncles axillary < 3 cm; corolla 6-8 mm; stamens 2.5-3 cm, filaments white at base, pink above. Legumes glabrous 50-140 x 6-8 mm, long attenuate at base, apiculate; seeds 8.

GENERAL DISTRIBUTION: Trinidad, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Bwa mayann, bwa patat, madam ti poule.

DESMANTHUS Willd.

Desmanthus Willd., Sp. Pl. **4**: 1044. 1806, nom. cons.

Syn.: *Acuan* Medikus, Theodora 62. 1786, nom. rejic.

Perennial herbs or shrubs. Stipules setaceous, persistent; leaves bipinnate, leaflets small, gland on rachis between the lower pinnae. Inflorescences axillary, flowers in heads, all bisexual or the lower neuter, sometimes without obvious petals and with staminodes; calyx campanulate, dentate; corolla of free petals or these slightly united below, white or greenish; stamens 10 or 5, free, exserted, anthers without apical glands; ovary subsessile, ovules numerous. Legume linear, straight or slightly curved, flattened, dehiscent, valves thick or membranaceous; seeds horizontal or oblique, ovate, compressed.

TYPE SPECIES: *Mimosa virgata* L. = *Desmanthus virgatus* (L.) Willd.

A genus of 25 species of tropical America.

Desmanthus virgatus (L.) Willd., Sp. Pl. **4**: 1047. 1806.

FIGURE 133.

Basionym: *Mimosa virgata* L., Sp. Pl. **1**: 519. 1753.

Type: India, LINN 1228.13 ex F&R.

Syn.: *Acuan virgatum* (L.) Medikus, Theodora 62. 1786.

Desmanthus virgatus (L.) Willd. var. *strictus* Bertero ex Griseb., Fl. Brit. W. Indian Is. 218. 1860.

Acuan guadeloupense Britton & Rose, N. Amer. Flora **23**: 133. 1928. (Type: Guadeloupe, Duss 2630.)

Desmanthus depressus Humb. & Bonpl. ex Willd., Sp. Pl. **4**: 1046. 1806. (Type: Amer. Merid., Humboldt & Bonpland s.n.).

Erect or ascending herb or subshrub, 0.5-2 m, stem angular, often hollow. Stipules linear-setaceous, 2.5-6 mm; leaves 2-8 cm; petiole 2.5-5 cm, glandular between first pair of pinnae; pinnae < 7 pairs; leaflets 10-25 pairs, linear to

linear-oblong, 4.9 x 1-1.8 mm, apex obtuse to apiculate, oblique and acentric at base. Flowers in globose heads on peduncles 2-7.5 cm; petals white, < 4 mm long; stamens 10. Legume linear, 50-90 x 2.8-4 mm, apiculate, reddish-brown, shiny; seeds 20-30.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, Tobago.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Acacia courant, acacia savane, petit acacia, pompon blanc.

NOTE: This is an extremely variable species ranging from the prostrate tenuous habit of "*depressus*" to the upright, unbranched subshrubs called "*virgatus*" with leaves also varying from linear and 1 mm wide to oblong and 2.5 mm wide. The shape of the gland between the first pair of pinnae has been employed to distinguish the two growth forms but this too is variable in fresh as well as dried material. Isley (Iowa State J. Sci. **44**: 495-511. 1970) recognized four varieties including *Desmanthus virgatus* (L.) Willd. var. *depressus* (Willd.) Turner.

DICHROSTACHYS Wight & Arn.

Dichrostachys Wight & Arnott, Prodr. Fl. Ind. 271. 1834, nom. cons.

Syn.: *Cailliea* Guillemin & Perrottet in Guillemin, Perrottet and A. Rich., Fl. Seneg. Tent. 239. 1832, nom. rejic.

Shrubs or small trees, axillary branches commonly modified into stout spines. Leaves pinnate, leaflets small, numerous. Flowers sessile in peduncled drooping spikes, the lower staminate, the upper perfect; calyx 5-dentate; petals 5, valvate, coherent at the base; stamens 10, those of the lower flowers elongate and conspicuous, those of the upper shorter, anthers with a stalked apical gland. Legume compressed, much twisted, indehiscent; seeds obovate, compressed, dark brown.

TYPE SPECIES: *Mimosa cinerea* L. = *Dichrostachys cinerea* (L.) Wight & Arnott.

REFERENCE: Brenan, Bol. Soc. Brot. ser. 2, **39**: 61-115. 1965.

Dichrostachys cinerea (L.) Wight & Arnott, Prodr. Fl. Ind. 271. 1834.

FIGURE 137.

Basionym: *Mimosa cinerea* L., Sp. Pl. **1**: 520. 1753.

Type: Egypt. Herb. Herm. **2**: 44 (BM).

Syn.: *Dichrostachys nutans* (Pers.) Benth in J. Bot. (Hooker) **4**: 353. 1841.

Mimosa nutans Persoon, Syn. Pl. **2**: 266. 1807. (Type: Senegal, *Adanson* in Herb. Juss. (P).)

Mimosa glomerata Forsskal, Fl. Aegypt.-arab. 177. 1775. (Type: Not located.)

Shrub or small tree < 6 m, spines stout, 1-2 cm. Petioles slender, 1-2 cm, usually with 1 or 2 slender stipitate glands between pairs of pinnae; pinnae 5-12 pairs, leaflets 20-30 pairs, linear oblong, 3-6 mm, ciliolate, apex obtuse. Peduncles

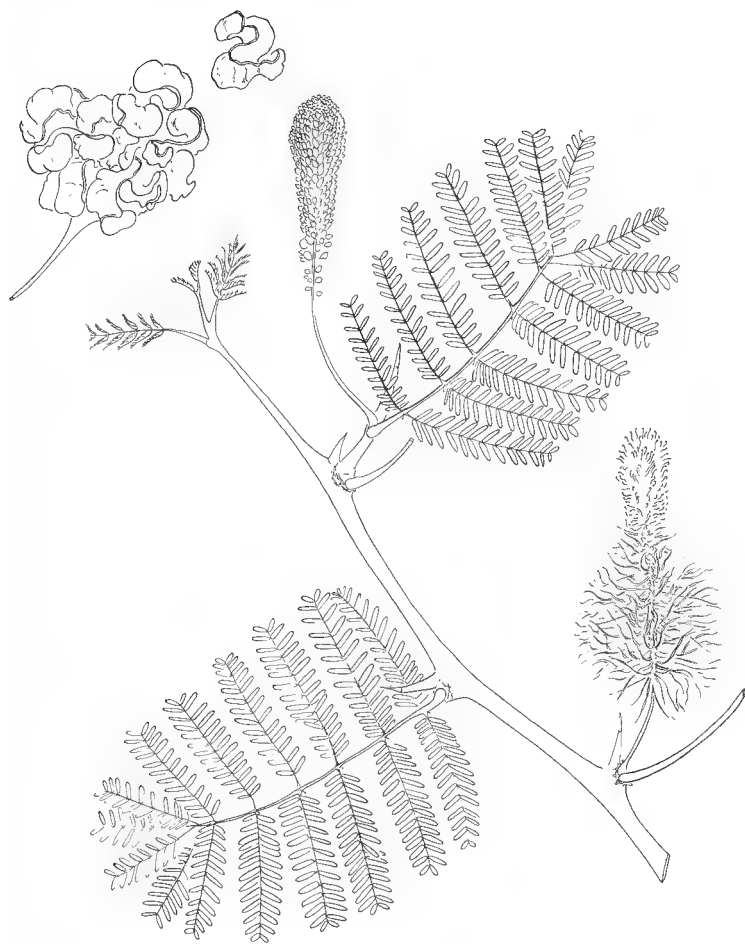


FIGURE 137. *Dichrostachys cinerea*: flowering shoot and fruit cluster, x 0.4.

axillary, slender, 4-6 cm, spikes drooping, 4-5 cm, perfect flowers with yellow stamens, staminate flowers with pink stamens or staminodes 1-1.5 cm. Legume glabrous, much twisted, 3-5 x 1 cm, seeds obovate, < 4 mm, dark brown.

GENERAL DISTRIBUTION: Africa, introduced and pestiferous especially in Cuba.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante!, Martinique!.

COMMON NAME: Acacia Saint Dominique.

NOTES: Duss reported this as "*Acacia suma*" and stated it was introduced in 1883. It was once cultivated at the St. Pierre Botanical Garden. It has been known as a cultivated perfume plant in Cuba since 1863.

ENTADA Adanson

Entada Adanson, Fam. Pl. 2: 318. 1753, nom. cons.

Syn.: *Gigalobium* P. Browne, Civ. Nat. Hist. Jamaica 362. 1756, nom. rejic. Type species: Not designated.

Entadopsis Britton, N. Amer. Flora 23: 191. 1928. Type species: *Mimosa polystachya* L.

High climbing, unarmed, woody liana. Leaves large, bipinnate, without glands; leaflets few to many. Inflorescence spicate, supra-axillary or terminal, flowers small, calyx shallowly cupulate, 5-toothed; corolla of 5 free petals; stamens 10, free, slightly exserted, anthers gland-tipped, ovary with several to many ovules. Legume often large, straight, valves breaking into 1-seeded segments, leaving a continuous margin, the outer valve cover falling away leaving an inner covering to the seeds; seeds compressed, often large and shining, generally orbicular.

TYPE SPECIES: *Mimosa entada* L. = *Entada monostachya* DC.

KEY TO THE SPECIES

Inflorescence supra-axillary and solitary; pinnae 1-2 pairs; leaflets 4-5 pairs; fruit to 1 m, seeds 4-5 cm dia. *E. gigas*
Inflorescence terminal of many spikes; pinnae 2-6 pairs; leaflets 6-8 pairs; fruit 20-40 cm, seeds 2 x 1.1 cm *E. polystachya*

NOTE: Britton's record of *Entadopsis polyphylla* from Guadeloupe and Martinique is based on a misidentified collection by Duss of *E. polystachya*.

Entada gigas (L.) Fawcett & Rendle, Fl. Jamaica 4: 124. 1920. FIGURE 138.

Basionym: *Mimosa gigas* L., Fl. Jamaica 22. 1759.

Type: Jamaica, Browne's description.

Woody liana to 50 m; leaves with 1-2 pair of pinnae; leaflets 4-5 pairs, obliquely elliptic, 2.5-5 x 1-2 cm, obtuse or emarginate at the apex. Spikes solitary or two together, supra-axillary, 15-20 cm; calyx 1.5 mm; petals oblong, 3-4 mm, greenish-yellow; stamens 10, yellow, 6-8 mm. Legume < 1 m, 9-12 cm wide, 5-15 seeded; seeds 4-5 cm broad, dark brown, shiny.

GENERAL DISTRIBUTION: Jamaica, Cuba, Honduras to Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique.

COMMON NAMES: Liane oua-oua, liane-boeuf.

NOTES: Duss (1897) reported his collections 3530 from Guadeloupe and 1153 from Martinique as *E. scandens*. Apparently the plant has not been recollected and the Duss material may have been under cultivation.

***Entada polystachya* (L.) DC., Mém. Légum. 434, t. 61. 1825.**

• Basionym: *Mimosa polystachya* L., Sp. Pl. 1: 520. 1753.

Type: Plum. Pl. Amer. t. 12.

Syn.: *Entada plumeri* Sprengel, Syst. Veg. 4(2): 164. 1827, nom. illeg.

Entadopsis polystachia (L.) Britton, N. Amer. Flora 23: 191. 1928.

High climbing woody liana; pinnae 2-6 pairs; leaflets 6-8 pairs, oblong to obovate, 2-4 x 0.8-1.2 cm, glabrous or pubescent on the veins beneath, obtuse or emarginate. Flowers in numerous terminal dense spikes, each 8-10 cm; calyx 0.5 mm; petals greenish 1 mm; filaments white. Legume 20-40 x 5-8 cm, char-taceous, shiny, many-seeded; seeds 2 x 1.1 cm, flat, dull brown with elevated oblong pleurogram.

GENERAL DISTRIBUTION: Hispaniola, Trinidad, Tobago, Mexico to Ecuador and Brazil.

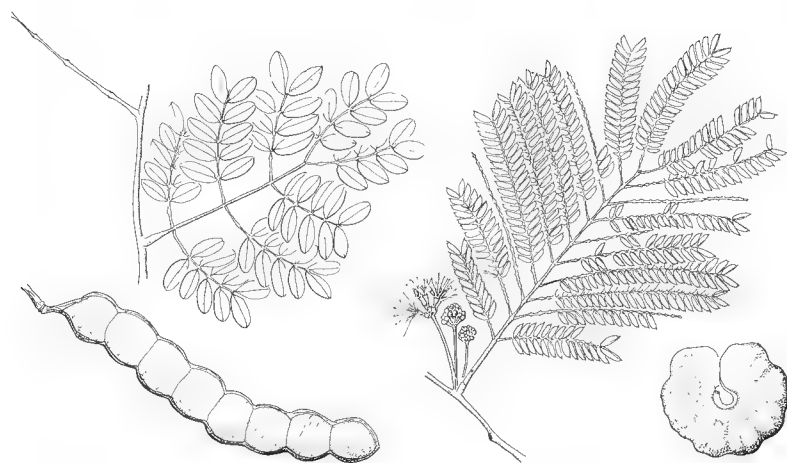


FIGURE 138 (left). *Entada gigas*: foliage, x 0.18; fruit, x 0.08. FIGURE 139 (right). *Enterolobium cyclocarpum*, x 0.25; fruit, x 0.33.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Liane à agoutis, manioc-la-chapelle.

ENTEROLOBIUM C. Martius

Enterolobium C. Martius, Flora 20, Beibl. 2: 117. 1837.

Unarmed trees. Leaves bipinnate, petiole glandular; leaflets numerous, small. Inflorescence solitary, axillary or terminal, flowers subsessile, capitate, perfect; calyx 5-toothed; corolla 5-lobed; stamens many, filaments united below, anthers small; ovary with many ovules, sessile. Legume twisted in a flat plane into a circle, thick but compressed, indehiscent with spongy mesocarp; seeds compressed, ellipsoid, transverse, with paler pleurogram.

TYPE SPECIES: *Mimosa contorti-siliqua* Velloso = *Enterolobium contortisiliqua* (Vell.) Morong.

A genus of 10 species of the West Indies, Central and South America.

Enterolobium cyclocarpum (Jacq.) Griseb., Fl. Brit. W. Indian Is. 226. 1860. FIGURE 139.

Basionym: *Mimosa cyclocarpa* Jacq., Fragn. Bot. 34. 1801.
Type: Caracas.

Large-trunked tree < 25 m with widely spreading branches. Petioles 2-6 cm, usually with sessile gland below the middle; pinnae 4-15 pairs, leaflets 20-30 pairs, linear-oblong, 8-15 mm, apex acute, paler beneath. Inflorescence axillary, peduncle 1.5-4 cm, heads many-flowered; calyx puberulent, 2.5 mm; corolla tube glabrate to puberulent, < 5 mm, teeth ciliate; staminal tube included, filaments white. Legume compressed, 3-4 cm wide, curved into a nearly complete circle 8-10 cm dia., shiny; seeds ellipsoidal, flat, with conspicuous pleurogram.

GENERAL DISTRIBUTION: Mexico to Venezuela, although introduced elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Cultivated or persisting. Montserrat!, Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Monkey ear, oreille à mulâtre, oreille d'éléphant.

INGA Miller

Inga Miller, Gard. Dict. abr. ed. 4. 1754.

Unarmed shrubs or trees. Leaves pinnate, usually large; petiole and rachis often winged, glands common between leaflets; stipules usually small. Inflorescence axillary, flowers capitate, umbellate, racemose or spicate; calyx tubular or campanulate, 5-toothed; corolla tubular or petals united near the base; stamens long exserted, numerous, white, anthers small; ovary sessile, ovules

numerous. Legume elongated, flat or angled, coriaceous or fleshy, indehiscent, mesocarp fleshy, seeds elongate, turgid, usually black and shiny.

TYPE SPECIES: *Mimosa inga* L. = *Inga vera* Willd.

REFERENCE: Pittier, Contr. U. S. Natl. Herb. **18**: 173-224. 1916. Pittier, J. Dept. Agr. Porto Rico **13**: 117-177. 1929. Leon, Ann. Missouri Bot. Gard. **53**: 265-359. 1966.

A genus of 200 species of tropical America.

KEY TO THE SPECIES

1. Petioles conspicuously winged.
 2. Inflorescence racemose; flowers pediceled; legume many-ribbed *I. ingoides*
 2. Inflorescence subcapitate or short spicate; flowers sessile.
 3. Leaflets lanceolate-oblong, long acuminate, glabrous; legume flat
..... *I. acuminata*
 3. Leaflets ovate-oblong, rounded or acute at apex, persistently puberulent; legume many-ribbed *I. edulis*
1. Petioles without wings.
 4. Corolla glabrous; spikes 6-15 cm, staminal tube exerted *I. laurina*
 4. Corolla strigose-pubescent; spikes to 5 cm long, staminal tube included.
 5. Leaflets broadly oblong, < 12 cm wide, persistently pubescent
..... *I. martinicensis*
 5. Leaflets ovate or ovate-oblong, < 5 cm wide, glabrate *I. dominicensis*

Inga acuminata Benth., London J. Bot. **4**: 600. 1845.

Type: Trinidad, Lockhart 334 (K).

Tree to 10 m, branches sparingly puberulent to glabrate; leaflets 3 or 4 pairs, glands small, rachis and petiole broadly winged, leaflets 3 or 4, lanceolate to lanceolate-elliptic, 5-15 x 1.2-5 cm, glabrate. Peduncle < 3.5 cm, flowers in subcapitate clusters, sessile, calyx 9 mm, long acuminate in bud, pubescent; corolla 8 mm, strigose. Legume linear-oblong, flat, thin, 12-20 x 1.5-2 cm; seeds numerous.

GENERAL DISTRIBUTION: Trinidad, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!

NOTE: The only record is a plant in Herb. Hooker (BM) as *Inga tergmina* without a collector cited. It may be of a plant cultivated in the St. Vincent Botanical Garden.

Inga dominicensis Benth., Trans. Linn. Soc. London **30**: 612. 1875.

Type: Dominica, Imray s.n. (K).

Tree < 15 m. Rachis terete; leaflets 2 or 3 pairs, ovate-lanceolate to oblong elliptic, 8-13 x 3-5 cm, apex broadly acuminate, base rounded, strigose when young becoming glabrate. Racemes short 4 cm peduncled, sparsely strigose;

calyx 2 mm; corolla 6 mm, strigose, staminal tube included, stamens 1-1.5 mm. Fruit with markedly raised margins.

GENERAL DISTRIBUTION: Endemic to Dominica in wet upland areas.

COMMON NAME: Caconier.

Inga edulis C. Martius, Flora 20, Beibl. 2: 113. 1837.

Type: Brazil, collector uncertain.

Syn.: *Inga edulis* C. Martius var. *grenadensis* Urban, Repert. Spec. Nov. Regni Veg. 15: 307. 1918. (Type: Grenada, Eggers 6384b.)

Tree < 12 m, twigs brownish-tomentose. Rachis winged, bearing large sessile glands between the leaflets; leaflets 4 to 6 pairs, ovate to oblong, 10-20 x 6.5-9 cm, apex rounded or acute or rarely acuminate, strongly veined and persistently pubescent below. Inflorescence axillary in clusters of 4 to 6, sometimes in short panicles; peduncles 2.4-3 cm, spikes to 3 cm, flowers sessile, calyx 5-8 mm, soft tomentose, apex rounded in bud; corolla 15-18 mm, white, villous; stamens 2-3 cm. Legume 30 cm or more, subterete, 12 mm dia., many-ribbed, tomentose, pulp white, seeds black, shiny.

GENERAL DISTRIBUTION: Veracruz, Mexico, to Venezuela, Brazil, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

COMMON NAMES: Pois doux, cacoley.

Inga ingoides (Rich.) Willd., Sp. Pl. 4: 1012. 1806.

Basionym: *Mimosa ingoides* Rich., Actes Soc. Hist. Nat. Paris 1(1): 113. 1792.

Type: Cayenne, Richard (P).

Syn.: *Inga galibica* Duchass. ex Walp., Linnaea 23: 747. 1850. (Type: Guadeloupe, Duchassaing 488.)

Tree < 25 cm, twigs reddish-tomentose. Rachis winged with small sessile glands between the leaflets, pubescent; leaflets 3 to 5 pairs, oval to oblong, 5-17 x 2.5-8 cm, apex short acuminate, base rounded, glabrate above, pale and somewhat pubescent below. Inflorescence axillary, solitary or in pairs, peduncle 1-7 cm; flowers in short racemes, pedicels 3-15 mm; calyx 5-10 mm brownish pubescent; corolla < 12 mm, white with brownish pubescence; stamens 5-6 cm, tube included. Legume elongate, subterete, 15-25 cm, many-ribbed, margins elevated; seeds oblong 1-1.5 x 0.5 cm.

GENERAL DISTRIBUTION: Trinidad, Guiana to Colombia.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Pois doux maron, pois doux cacacoli, cacolie, Spanish oak, kakoli.

Inga laurina (Sw.) Willd., Sp. Pl. 4: 1018. 1806.

FIGURE 140.

Basionym: *Mimosa laurina* Sw., Prodr. 85. 1788.

Type: St. Kitts, *Masson s.n.* (BM).

Syn.: *Mimosa fagifolia* L., Sp. Pl. 1: 516. 1753, not *Inga fagifolia* G. Don. (Lectotype: Barbados, Plukenet herb. (BM).)

Mimosa fagifolia Jacq., Select. Stirp. Amer. Hist. 264, t. 164. 1763, not Linnaeus.

Tree < 15 m, branches glabrous. Rachis unwinged, bearing cup-shaped glands between pairs of leaflets; leaflets 1 to 3 pairs, obovate to lanceolate, 4-11 x 1.5-4.5 cm, apex rounded or acuminate, base obtuse or cuneate. Inflorescence axillary, peduncle 1 cm, spikes < 15 cm, flowers sessile, calyx 2-3 mm; corolla 5 mm glabrous, white; stamens 1.5 cm, tube exserted. Legume flat or occasionally nearly terete when fresh, 7-12 x 1.5-2.5 cm; seeds 5-7.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Spanish oak, cacoley, pois doux, pois-doux blanc, pwa dou.

NOTES: The inflorescence of this species is often fungus infected and fasciated into a condensed witches'-broom.

I believe Leon's treatment of "*Inga fagifolia* (L.) Willd." for this species is in

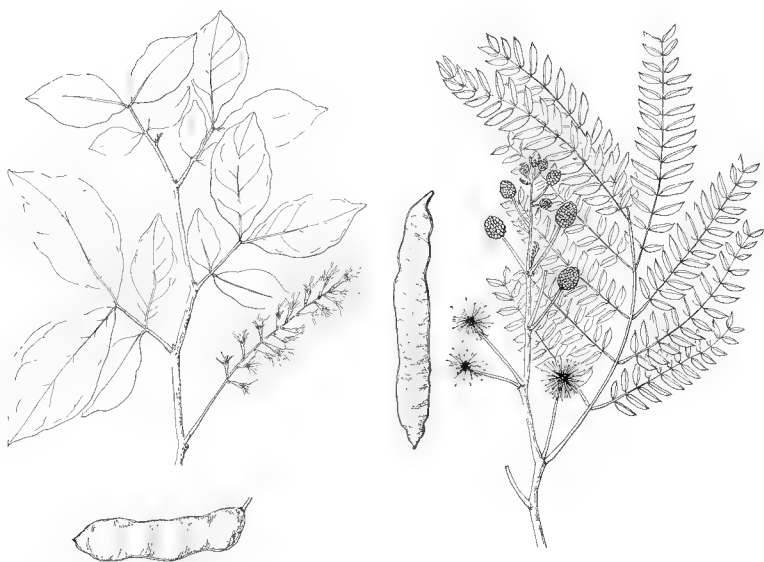


FIGURE 140 (left). *Inga laurina*, x 0.3. FIGURE 141 (right). *Leucaena leucocephala*, x 0.3.

error and that *Inga laurina* (Sw.) Willd. does not occur in Central America. *Inga fagifolia* Willd. is not the same as *Inga fagifolia* G. Don, and the Central and South American material requires further study and an alternate name.

Inga martinicensis Presl, Symb. Bot. 1: 65, t. 42. 1832.

Type: Martinique, *Sieber* 325.

Small tree, twigs brownish pubescent. Rachis narrowly winged, glands small. Leaflets 2 pairs, obovate, 8-18 x 7-11 cm, apex obtuse, base rounded, slightly pubescent both sides. Inflorescence spicate, peduncle < 2 cm, flowers sessile, calyx 4 mm, pubescent; corolla 8 mm, pubescent; stamens 1.5 cm, tube included. Legume 10-12 x 1-1.4 cm, glabrous, shiny, rounded at both ends; seeds 10.

GENERAL DISTRIBUTION: Endemic to Martinique and not recently recollected.

COMMON NAMES: Pois-doux montagne, pois-doux des hauts.

NOTE: Stehlé & Quentin (Fl. Guad. 2(3): 45. 1949) refer *Inga martinicensis* to the synonymy of *Inga coruscans* Kunth ex Willd. which is a very different species.

LEUCAENA Benth

Leucaena Benth, J. Bot. (Hooker) 4: 416. 1842.

Unarmed shrub or small trees. Stipules triangular, caducous; leaves bipinnate, bearing a gland between lower 2 pinnae. Inflorescence axillary, peduncled, solitary or clustered or in leafless terminal racemes, globose; flowers all perfect, calyx campanulate, 5-toothed; corolla of 5 distinct petals; stamens 10, filaments free, exserted, anthers without apical glands, often pilose; ovary stipitate, ovules numerous. Legume linear to oblong, compressed, valves 2, membranaceous, separating and then curving lengthwise; seeds ovate or obovate, flat, transverse.

TYPE SPECIES: *Mimosa leucocephala* Lam. = *Leucaena glauca* Benth. = *Leucaena leucocephala* (Lam.) de Wit.

REFERENCES: L. O. Williams, Taxon 13: 300. 1967; R. Wilbur, Taxon 30: 452-453. 1981; Parkinson, Taxon 32: 331. 1985.

A genus of about 20 species of tropical America.

KEY TO THE SPECIES

- Pinnae 4 to 8 pairs; leaflets 10 to 20 pairs, 8-15 mm long *L. leucocephala*
Pinnae 10 to 25 pairs; leaflets 25 to 40 pairs, 3-6 mm long *L. brachycarpa*

Leucaena brachycarpa Urban, Symb. Antill. 2: 265. 1900.

Lectotype: Jamaica, *Campbell* 6425.

Tree < 8 m, twigs, petioles, rachis and peduncles pilose, an elliptic or orbicular gland between pairs of pinnae. Petiole 1-4 cm; pinnae 10 to 25 pairs; leaflets 25 to 40 pairs, linear, pubescent below when young becoming glabrate but ciliate

on the margins, 3-6 x 0.7-1 mm, apex acute or short acuminate, base rounded. Inflorescences solitary or clustered, axillary, peduncles 1-2 cm, calyx 2 mm long, strigose; petals 4 mm long, lanceolate. Legume 10-18 x 2 cm, linear-oblong, apex apiculate, base cuneate; seeds 20-24.

GENERAL DISTRIBUTION: Mexico, but naturalized in Jamaica.

DISTRIBUTION IN LESSER ANTILLES: Martinique.

NOTE: Introduced to the St. Pierre Botanical Garden before 1900 and reported to have escaped and become naturalized.

Leucaena leucocephala (Lam.) de Wit, Taxon **10**: 54. 1961. FIGURE 141.

Basionym: *Mimosa leucocephala* Lam., Encycl. **1**: 12. 1785.

Type: America, without collector (P-LA).

Syn.: *Mimosa glauca* L., Sp. Pl. ed. 2. **2**: 1504. 1763 (not L. 1753).

Acacia glauca Willd., Sp. Pl. **4**: 1075. 1806 (not Moench).

Leucaena glauca (Willd.) Benth., J. Bot. (Hooker) **4**: 416. 1842.

Shrub or small tree < 10 m, twigs densely gray puberulent. Leaves 10-20 cm, petioles 3-6 cm, usually with gland between first 2 pinnae; pinnae 4 to 8 pairs, leaflets 10 to 20 pairs, linear-oblong or lanceolate, 8-15 mm, thin, acute at apex, obtuse at base, puberulent on midrib and margins. Inflorescence axillary, peduncles 2-3 cm, solitary or clustered or terminal, calyx 1 mm, pubescent, dentate; petals linear, pubescent; stamens 6-8 mm long. Legume linear-oblong, 10-15 x 1.5 cm, abruptly acute or mucronate at apex, tapering at base; seeds 17-21, elliptic to ovate, 6-9 x 3.5-5 mm, shiny brown.

GENERAL DISTRIBUTION: Widespread in tropical America and introduced to Africa and Asia.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Wild tamarind, wild mimosa, monval, tamarin bâtard, macata, macata-bourse.

NOTE: Regarded as a high-protein foliage-forage for cattle and goats when the plants are cut and coppiced. However, to maned animals the foliage can be a depilatory and even toxic in quantities. Seeds were once widely used in the Caribbean for making seed jewelry, necklaces and place mats, but such articles are now imported primarily from the Philippines.

LYSILOMA Benth

Lysiloma Benth., London J. Bot. **3**: 82. 1844.

Unarmed trees or shrubs. Stipules mostly foliaceous; leaves bipinnate; leaflets small, in numerous pairs, or rarely large and in few pairs, petiolar gland often conspicuous. Peduncles axillary, solitary, fasciculate or short racemose; flowers in globose heads or cylindric spikes; calyx shortly 5-dentate; corolla funnel-

shaped or campanulate; stamens numerous, 12-30, exserted, connate at base into a tube but free from the corolla; anthers minute, eglandular; ovary sessile or short stipitate; ovules numerous. Fruit linear, often broad, straight or nearly so, plano-compressed, submembranaceous, valves breaking away from the persistent margins, continuous within; seeds transverse, ovate, compressed.

TYPE SPECIES: *Lysiloma bahamensis* Benth. = *Lysiloma latisiliquum* (L.) Benth.

A genus of about 3 species from southern U. S. through the West Indies to South America.

KEY TO THE SPECIES

Inflorescences solitary or few *L. latisiliquum*
Inflorescence much-branched panicle of many heads *L. ambigua*

NOTE: A genus similar to *Albizia* differing in the mimosa-like dehiscence of the legume. In appearance the pod is indehiscent in contrast to *Albizia* pods, which split along one suture. *Lysiloma* pods persist on the tree, shedding the outer layer of the valve entirely or in pieces, giving the fruit a characteristic mottled appearance. Eventually, the thin margin splits away from the valves at the styler end or the margin becomes completely free when the pod falls and rots.

Lysiloma ambigua Urban, Ark. Bot. 22(8): 28. 1929.

FIGURE 144.

Basionym: *Acacia ambigua* J. Vogel, Linnaea 10: 600. 1836, not Hoffmannsegg, 1826.

Type: Hispaniola, Ehrenberg.

Syn.: *Acacia vogeliana* Steudel, Nomencl. Bot. ed. 2. 1: 9. 1840, nom. nov.

Lysiloma vogeliana (Steudel) Stehlé, Bull. Mus. Hist. Nat. (Paris) sér. 2, 18: 193. 1946.

Small tree. Petioles 1.5-3 cm, bearing flat gland below first pair of pinnae; pinnae 6 pairs; leaflets 10-15 pairs, oblong, 12 x 6 mm, apex rounded, base asymmetric, obtuse, midrib eccentric, blade paler below. Inflorescence to 20 cm, a large panicle of small heads 1 cm dia. in flower; fruit not described.

GENERAL DISTRIBUTION: Hispaniola.

COMMON NAME: Macata-bourse bâlard.

NOTE: Stehlé (op. cit.) made one collection #4837 in Fonds Bourlet between Case Pilote and Bellefontaine, as the only record of this taxon from the Lesser Antilles. I have not located such a specimen. According to the rules of nomenclature of the time Stehlé was correct in making a new combination. However, the specific epithet of an illegitimate name can now be used in a different genus without being a transfer, hence Urban's name is correct as a new species in *Lysiloma*. Liogier (Fl. Española III: 20. 1985) accepted this taxon as *Acacia vogeliana* Steud. and suggested the record for Martinique was perhaps an error. He described the fruit as 9-14 cm long, 2-2.3 cm wide and obtuse at the apex. The plant is illustrated by Liogier but no characters are given in the text or shown in the plate that would place this in *Acacia* rather than *Lysiloma*.



FIGURE 142 (upper left). *Neptunia plena*, x 0.3. FIGURE 143 (upper right). *Mimosa pigra*, x 0.3. FIGURE 144 (lower left). *Lysiloma ambigua*, x 0.3. FIGURE 145 (lower right). *Pithecellobium unguis-cati*, x 0.3.

Lysiloma latisiliquum (L.) Benth., Trans. Linn. Soc. London **30**: 534. 1875.

Basionym: *Mimosa latisiliqua* L., Sp. Pl. **1**: 519. 1753.

Type: Plum. Pl. Amer. t. 6.

Syn.: *Lysiloma bahamensis* Benth., London J. Bot. **3**: 82. 1844. (Type: Bahamas, Swainson.)

Tree < 16 m, twigs glabrous. Stipules ovate, acuminate; leaves 8-14 cm; petiole with large gland near lowest pair of pinnae; pinnae 2-5 pairs; leaflets 10-33 pairs, oblong or oblong-lanceolate, 8-15 x 2-3 mm, apex obtuse, asymmetrical and obtuse at base, glabrous. Inflorescence capitate, globose; peduncles 2-4 cm; flowers white, mostly perfect; calyx campanulate 1 mm; corolla 2 mm; stamens 4 mm. Legume linear-oblong, 8-15 x 2-2.5 cm, nearly straight, pointed; seeds flat, 12 mm long, dark brown, shiny.

GENERAL DISTRIBUTION: Florida, Bahamas, Cuba, Hispaniola, Mexico.

DISTRIBUTION IN LESSER ANTILLES: Reported to be cultivated in Barbados.

MIMOSA L.

Mimosa L., Sp. Pl. **1**: 516. 1753.

Herbs or shrubs, sometimes scrambling or climbing, mostly with all parts prickly. Leaves bipinnate or appearing digitate, commonly sensitive to touch; pinnae few to many; leaflets few to many pairs. Inflorescence axillary or terminal; flowers perfect or staminate, sessile in ovoid or subglobose heads; calyx small, minutely dentate; corolla 5-6-lobed; stamens as many or twice as many as the corolla lobes, exserted, anthers eglandular. Legume linear, oblong or undulate along the margins, straight or coiled, flat, usually bristly or prickly, at maturity splitting into 1-seeded segments free from the persistent margins; seeds usually oval, flat.

LECTOTYPE SPECIES: *Mimosa sensitiva* L.

A genus of about 450 species, mainly American but with a few in Africa and Asia.

NOTE: *Mimosa orthocarpa* Spruce represented by *Belanger* 5022 (P) was once cultivated in the St. Pierre botanical garden on Martinique. Specimens labeled *Mimosa velloziana* Mart. (*Hahn* 653 BM) and *Mimosa sensitiva* L. (*Hahn* 449 BM) are from the same garden.

KEY TO THE SPECIES

1. Pinnae 1 or 2 pairs.
 2. Leaflets 15-25 pairs, linear 6-10 x 1.5-2 mm; legume 1-1.5 x 4 mm, constricted laterally at the joints *M. pudica*
 2. Leaflets 1 or 2 pairs or 3 or 4 pairs but much larger.
 3. Leaflets 1 or 2 pairs, oblong to obovate, 2.5 x 1.5 cm, apex rounded, base strongly asymmetrical, lamina densely pubescent; legume 10-13 x 3-4 mm; valves setose *M. debilis*

3. Leaflets 3 or 4 pairs, of varying sizes, the middle ones 2-4 x 1-1.5 cm, apex acute, lamina glabrate or ciliolate on the margins; legume 2-4 x 1 cm; valves glabrous *M. casta*
1. Pinnae of 3 or more pairs.
 4. Leaflets 1 or 2 pairs, broadly obovate to suborbicular, 1-2.5 x 1-2 cm; legume 6 by 1.4-1.8 cm, the valves not jointed; plant abundantly armed with recurved prickles *M. ceratonia*
 4. Leaflets 15-50 pairs, linear, 1-2 mm wide.
 5. Pinnae of 4 pairs seemingly subdigitately arranged; legume copiously pubescent, 10-15 x 4 mm *M. polydactyla*
 5. Pinnae of more than 4 pairs, not subdigitate.
 6. Pinnae numerous, to 50 pairs, rachis puberulent bearing large flattened spines opposite each other between the lower 6 to 8 pairs of pinnae; legume oblong, flattened and usually curved, < 8 cm long, 10-12 mm wide, with 10-13 valves or seeds *M. pigra*
 6. Pinnae 48 pairs; rachis with slender straight or recurved prickles.
 7. Inflorescence spicate; legume with 6-8 valve segments
..... *M. malacocentra*
 7. Inflorescence capitate or short racemose; legume pilose, of 2-3 valve segments *M. camporum*

Mimosa camporum Benth., J. Bot. (Hooker) 2: 130. 1840.

Type: British Guiana, *Schomburgk* 725.

Syn.: *Mimosa flavescens* Splitg., Tijdschr. Natuurl. Gesch. Physiol. 9: 110. 1842. (Type: Surinam, collector uncertain.)

Woody herb to 1 m, stems densely pilose, sparingly with short thin prickles or unarmed. Stipules lanceolate or setaceous, 5-6 mm long; leaves 7-8 cm, petioles < 1 cm with rachis densely pilose, prickles thin and small; pinnae 4-8 pairs, leaflets 15-30 pairs, linear, 4-6 x 1-2 mm, apex acute, margins strongly pilose or ciliate. Peduncles axillary 1-2 cm, head subglobose, densely pubescent, flowers 4-parted; stamens 8, rose or pink, < 6 mm. Legumes clustered, linear-oblong, 8-15 x 4 mm, usually 3-valved, densely setose; seeds 3 x 2 mm with complete pleurogram, dark brown shining.

GENERAL DISTRIBUTION: Mexico, Central America, Colombia to the Guianas.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Mimosa casta L., Sp. Pl. 1: 518. 1753.

. Lectotype: "India" but probably Brazil. Hort. Cliff. 208.2 (BM).

Syn.: *Mimosa dominicana* Desv., Ann. Sci. Nat. Bot. 9: 424. 1825. (Type: Dominica, *Hamilton s.n.* (P).)

Shrub, woody at base with scandent branches < 5 m, glabrous, prickly. Petioles 2-6 cm with recurved prickles; pinnae 1 pair, leaflets 3-4 pairs of varying sizes and shapes, the middle oblong to oblong-lanceolate, 2-4 x 1-1.5 cm, apex acute to acuminate, base rounded to truncate, glabrous or with scattered bristles below, 3-5-nerved at base. Peduncles 1-2 cm, flowers in small heads 1 cm dia. or less, flowers 4-parted; stamens 8. Legume oblong 2-4 x 1 cm, glabrous, mostly

with 4 segments, margin long setose; seeds compressed, oval, 5 x 3 mm, light brown.

GENERAL DISTRIBUTION: Central America, Colombia, Brazil, Trinidad, Tobago.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Cock chien, amourette, honteuse male, kók chyen.

Mimosa ceratonia L., Sp. Pl. 1: 523. 1753.

Type: Plumier, Pl. Amer. t. 8. 1756.

Shrub with scrambling branches or completely scandent, < 6 m, stems, petioles and leaf rachis with recurved prickles. Stipules subulate, 2-3 mm; petioles < 6 cm; pinnae mostly 5 pairs, leaflets 3-5 pairs, obliquely obovate to suborbicular, 1-2.5 x 1-2 cm, apex rounded, base asymmetrically acute. Heads in terminal racemes, generally clustered, peduncles prickly to 2 cm; petals and stamens cream colored, stamens 8 mm. Legume straight, oblong < 6 cm x 1.4-1.8 cm, glabrous, valves unjointed, margins armed with recurved prickles; seeds compressed, oblong, 7 x 4 mm, dark brown or black.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Martinique!, St. Lucia!, Barbados.

COMMON NAMES: Amourette-grand-bois, gratte-jambe, croc-chien.

Mimosa debilis Humb. & Bonpl. ex Willd., Sp. Pl. 4: 1029. 1806.

Type: Caripe, *Humboldt* 297.

Woody herb, largely unbranched, > 1.5 m; stems puberulent to strigose, sparsely spiny with thin slightly recurved prickles. Stipules setaceous; petioles 1.5-3 cm strigose; pinnae 1 pair; leaflets 2 pairs, oblong to obovate, slightly asymmetric, 2.5 x 1.5 cm, apex rounded with short mucro, base strongly acentric and rounded on one side, densely ferruginose pubescent. Inflorescence axillary and solitary or in terminal units, peduncles 1-3 cm, strigose, heads globose, flowers 4-parted, stamens 4, bright pink, < 6 mm. Legume 1-1.3 cm, densely setose on valves and margins, seeds 3-4.

GENERAL DISTRIBUTION: Colombia, Venezuela, Surinam, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Known only from St. Lucia.

Mimosa malacocentra (C. Martius) Benth., Trans. Linn. Soc. London 30: 415. 1875.

Basionym: *Acacia malacocentra* C. Martius, Herb. Fl. Bras. 106. 1837.

Type: Brazil, *Luschnath* 143.

Small shrub < 2 m, stems red-brown, spines few and recurved or wanting, all parts densely pubescent. Stipules subulate to lanceolate, rigid, persistent;

petioles 7-9 mm; pinnae 5-7 pairs; leaflets 20-30 pairs, oblong-linear, 4 mm x 1-1.2 mm, apex acute and mucronulate, base obtuse and asymmetric, midrib centric. Peduncles < 5 mm, spikes densely flowered < 3 cm. Legume with stipes < 5 mm, pod flat, 30 x 4-5 mm, shiny, valves 6-8; seeds oval to diamond-shaped, 4 mm long, longitudinal, flat, shiny.

GENERAL DISTRIBUTION: Brazil.

DISTRIBUTION IN LESSER ANTILLES: Known only from the Rivière Salle, Martinique (Rollet 1733, A), where the plant is invading abandoned fields.

Mimosa pigra L., Cent. Pl. 1: 13. 1755.

FIGURE 143.

Lectotype: Commelin, Horti. Med. Amstelod. 1: 59, t. 30.

* Syn.: *Mimosa asperata* L., Syst. Nat. ed. 10, 2: 1312. 1759. (Lectotype: LINN 1228.32.)

Shrub < 3 m, branches arching and spreading, setose and more or less prickly with stout, flattened thorns; leaves to 30 cm; petioles 1-2 cm; pinnae 7-16 pairs, rachis commonly with opposite prickles between the pinnae, these flattened, straight, tan; leaflets 50 pairs, linear, 5-8 x 1 mm, pubescent both surfaces. Inflorescence terminal, peduncles single or clustered 2-5 cm; heads globose to oblong, corolla 4-lobed, stamens 8, pink. Legume narrowly oblong, < 80 x 10-12 mm, flattened, slightly curved, densely hispid, 10-13-jointed, apex apiculate, base stipitate, margin persistent hispid-setose; seeds compressed, oblong, 6 x 2.5 mm, brown.

GENERAL DISTRIBUTION: Probable native of Old World established in Greater Antilles, Central America and South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!, Grenada!, Barbados.

COMMON NAMES: Amourette-rivière, amourette violet, banglin.

Mimosa polydactyla Humb. & Bonpl. ex Willd., Sp. Pl. 4: 1033. 1806.

Type: Colombia, near San Carlos.

Woody plant < 3 m, hirsute or setose to glabrate, sparsely prickly with curved thorns. Stipules linear, setaceous; pinnae 3-5 pairs, approximate or palmately clustered; leaflets 30-60 pairs, linear, 4-6 x 1 mm, glabrous but margins setose. Peduncles solitary or paired, to 1 cm, setose; flowers capitate, rose-pink, 4-parted, stamens 4, < 1 cm. Legume oblong, 10-15 x 4 mm, apex acute, valves and margins densely long-setose, joints 4.

GENERAL DISTRIBUTION: Widespread in tropical South America.

DISTRIBUTION IN LESSER ANTILLES: Established on Martinique!, but collected once on St. Vincent!.

Mimosa pudica L., Sp. Pl. 1: 518. 1753.

Lectotype: Brazil, Herb. Cliff. 208.3 (BM).

Syn.: *Mimosa tetrandra* Humb. & Bonpl. ex Willd., Sp. Pl. 4: 1032. 1806. (Type: Herb. Willd. 19069.)

Mimosa pudica L. var. *tetrandra* (Willd.) DC., Prodr. 2: 426. 1835.

Mimosa unijuga Duch. & Walp., Linnaea 23: 744. 1850. (Type: Guadeloupe, Duchassaing (GOET).)

Mimosa pudica L. var. *unijuga* (Duch. & Walp.) Griseb., Abh. Königl. Ges. Wiss. Göttingen 7: 211. 1857.

Herbaceous or woody prostrate or ascending plants, stems loosely pubescent with spreading hairs or glabrate, sparsely to densely armed with curved prickles. Petioles 2-6 cm long; pinnae 1 pair or 2 subdigitate pairs; leaflets 15-25 pairs, linear, 6-10 x 1.5-2 mm, apex acute, base obliquely rounded. Peduncles axillary, solitary or seemingly clustered in terminal inflorescences; petals and stamens 4 mm. Legumes linear-oblong, sometimes curved, 10-15 cm x 4 mm, joints 2-5, constricted at joints, glabrous or armed with slender straight bristles on the margins.

GENERAL DISTRIBUTION: Worldwide in the tropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Honteuse, honteuse femelle, marie-honte, sensitive plant, mayhont, ti mawi.

NOTE: Plants vary from delicate little weeds of gardens to a rampant stout spiny dominant plant of pastures. Leaflets, pinnae and leaves are all sensitive to touch. Brenan (Kew Bull. 184-189. 1955) recognized both varieties in treating the African flora and cited examples of each from the Antilles. However, single plants may have 1 or 2 pairs of pinnae and the corolla pubescence seems extremely variable in the Lesser Antillean plants.

NEPTUNIA Lour.

Neptunia Lour., Fl. Cochinch. 2: 653. 1790.

Perennial herbs, terrestrial prostrate or ascending, or floating; stems frequently unbranched. Stipules lanceolate, membranaceous, persistent or deciduous. Leaves bipinnate, glands present or absent. Inflorescence axillary, solitary or in pairs, pedunculate congested spikes; peduncles usually with pair of bracts; lower flowers staminate or sterile, staminodes petaloid, yellow; upper flowers perfect; calyx campanulate, 5-toothed; corolla 5-parted, green; stamens 5 or 10, exserted, anthers with small apical gland. Legume flat, dehiscent, 1-20 transverse seeds.

TYPE SPECIES: *Neptunia oleracea* Lour.

A genus of 11 species of tropical areas of the world.

REFERENCE: Windler, Australian J. Bot. 14: 379-420. 1966.

NOTE: Box, in an unpublished manuscript, recorded sight records of *Neptunia oleracea* from Antigua and Barbuda. No specimens have been located.

KEY TO THE SPECIES

- Bracts of peduncle borne above middle; stipules striate-nerved; leaflets ciliate *N. pubescens*
 Bracts of peduncle borne below middle; stipules 1-nerved, not striate; leaflets glabrous *N. plena*

Neptunia plena (L.) Benth. J. Bot. (Hooker) 4: 355. 1841. FIGURE 142.

Basionym: *Mimosa plena* L., Sp. Pl. 1: 519. 1753.

Type: Mexico, LINN 1288.12.

Syn.: *Mimosa punctata* L. Syst. Nat. ed. 10, 2: 1311. 1759. (Type: not specified.)

Desmanthus punctatus (L.) Willd., Sp. Pl. 4: 1047. 1806.

Slender branched herb, prostrate or ascending, < 60 cm. Stipules ovate, 4-6 mm, thin, not striate-veined; petioles slender 1.3-3.5 mm, with depressed gland between or immediately below lower pair of pinnae; pinnae 2-4 pairs; leaflets 12-20 pairs, linear, 4-10 x 12 mm, obtuse at apex, glabrous. Peduncles 6-12 cm, usually with 1 or 2 cordate bracts at or below middle; heads ovoid, flowers yellow, upper perfect, lower staminate or neuter with exerted staminodes. Legume 20-50 x 5-8 mm, acute or apiculate, stipes longer than calyx.

GENERAL DISTRIBUTION: Greater Antilles, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Pompon jaune, acacia jaune, pompon-mare.

Neptunia pubescens Benth. J. Bot. (Hooker) 4: 356. 1841.

Type: Peru, *Cumming* 1027.

Herb, stems prostrate to ascending, < 70 cm. Stipules ovate-lanceolate, acuminate, 2-3 mm, striate; petioles 1-3 cm, without glands; pinnae 2-5 pairs; leaflets 15-35 pairs, oblong or linear-oblong, 3.2-5 x 1 mm, apex acute, midrib below and margins generally ciliate. Peduncles axillary, 2-5 cm long, pilose, without bracts or bracts minute and borne above middle; heads globose, few-flowered. Legume oblong, 20-35 x 6-8 mm, obtuse or rounded at apex, short stipitate.

GENERAL DISTRIBUTION: Florida to Texas, Greater Antilles, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Antigua!, Guadeloupe!, Dominica!, Martinique!.

PITHECELLOBIUM C. Martius

Pithecellobium C. Martius, Flora 20 (2) Beibl. 8: 114. 1837, orth. & nom. cons.

Shrubs and trees with or without woody stipular spines. Leaves bipinnate;

pinnae 1 to several pairs; leaflets 1 to many pairs. Inflorescences axillary, solitary or clustered, pedunculate, flowers in globose heads, pink to yellow; calyx campanulate, dentate; corolla funnelform, 5-6-lobed; stamens united in tube below, few or numerous, long exserted. Legume compressed or turgid, curved and twisted, bivalvate, valves generally twisting after dehiscence, arils usually present.

TYPE SPECIES: *Mimosa unguis-cati* L. = *Pithecellobium unguis-cati* (L.) Benth.

A pantropical genus of 200-plus species although, by some workers, divided into a dozen or more genera.

KEY TO THE SPECIES

1. Pinnae 1 pair; leaflets 1 pair; aril conspicuous in dehiscent fruit.
 2. Inflorescence tomentose; corolla 2.5-3 mm long *P. dulce*
 2. Inflorescence glabrous; corolla 5-6 mm long *P. unguis-cati*
1. Pinnae 3-5 pairs; leaflets 3-10 pairs; aril inconspicuous or wanting.
 3. Leaflets rhombic to rhombic-obovate, midrib diagonal, blades 0.8-5 cm long; without stipular spines *P. jupunba*
 3. Leaflets oblong, 8-10 x 3-4 mm, midrib eccentric but longitudinal; with slender stipular spines *P. tortum*

Pithecellobium dulce (Roxb.) Benth., London J. Bot. **3**: 199. 1844.

Basionym: *Mimosa dulcis* Roxb., Pl. Coromandel **1**: 67, t. 99. 1798.

Shrub or tree, < 20 m, branchlets with stipular spines to 1.2 cm. Leaves bipinnate; petiole 0.3-5 cm with glands between pinnae; leaflets asymmetrically elliptic to obovate-elliptic, 0.7-5 x 0.3-2.3 cm, rounded, emarginate or slightly acute at the apex. Heads 1 cm dia. in racemes or panicles; calyx 1-1.5 mm long, puberulent; corolla 3-4.5 mm, puberulent; stamens white, about 50, free portion 6.5-7 mm. Fruit curved or spirally twisted, red, pink or brown, 10-12.5 x 1-1.6 cm, slightly flattened, glabrous or puberulent; seeds black, glossy, obovate-oblong, 9-12 x 7-8 mm, covered with white fleshy aril which turns red with age.

GENERAL DISTRIBUTION: Originally from Mexico but now naturalized throughout tropics.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!.

Pithecellobium jupunba (Willd.) Urban, Symb. Antill. **2**: 257. 1900.

Basionym: *Acacia jupunba* Willd., Sp. Pl. **4**: 1067. 1806.

Type: Brazil, Herb. Willd. 19142.

Syn.: *Mimosa trapezifolia* Vahl, Eclog. Amer. **3**: 36. 1807. (Type: Trinidad, Ryan (C).)

Pithecolobium trapezifolium (Vahl) Benth., in J. Bot. (Hooker) **2**: 142. 1840.

Pithecolobium micradenium Benth., London J. Bot. **3**: 217. 1844. (Type: Dominica, Imray (K).)

Pithecolobium brongniartii Duchass. & Walp., Flora n.s. **11**: 232. 1853. (Type: Guadeloupe, Duchassaing.)

Tree < 30 m, twigs, petioles, rachis, peduncle puberulent. Pinnae 2-6 pairs, glands small, orbicular, borne between pinnae; leaflets 3-12 pairs, rhombic to rhombic-obovate, 0.8-2.5 x 6-18 mm, rounded or obtuse at both ends. Peduncles < 8 cm; flowers capitate, calyx 2.5-3 mm, puberulent; corolla campanulate < 5 mm; staminal tube included, stamens < 2 cm. Legume circinate, 8 x 1 cm, more or less constricted between seeds; seeds blue-green and gray, suborbicular.

GENERAL DISTRIBUTION: Trinidad, Colombia, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Dalemare, savonette, wild tamarind, pipiri fougère, tamarin sauvage, dalmawi, dalmarie.

NOTE: Young plants and long shoots of vigorous growth often have more numerous pinnae and smaller, more numerous leaflets. The inflorescences are often infected with fungi and form a witches'-broom.

Pithecellobium tortum C. Martius, Herb. Fl. Bras. 114. 1835.

Type: Brazil near Bahia, *Martius*.

Syn.: *Pithecolobium vincentis* Bentham, London J. Bot. 3: 222. 1844. (Type: St. Vincent, *Guilding* (K).)

Chloroleucon vincentis (Bentham) Britton & Rose, N. Amer. Flora 23: 37. 1928.

Shrub or small tree, < 4 m; branches and foliage pilose, puberulent or glabrate. Stipular spines slender, solitary or paired, straight, < 1.5 cm. Petioles 1-3 cm, with small stalked gland at midpoint; pinnae 3-5 pairs; leaflets 5-9 pairs oblong to obovate-oblong, 8-10 x 3-5 mm, apex obtuse, base obliquely obtuse, sparingly pilose. Peduncles axillary, < 1.3 cm; flowers in globose heads, calyx 2 mm; corolla 5 mm; stamens to 2 cm, all white. Legume arcuate, < 15 x 1-1.3 cm, flat.

GENERAL DISTRIBUTION: Greater Antilles, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Vincent!.

Pithecellobium unguis-cati (L.) Bentham, London J. Bot. 3: 200. 1844.

FIGURE 145.

Basionym: *Mimosa unguis-cati* L., Sp. Pl. 1: 517. 1753.

Type: Jamaica. Not identified.

Shrub to small tree, < 6 m, usually armed with paired stipular spines to 2 cm. Petioles 2-5 cm, with round gland between pinnae and leaflets; pinnae 2; leaflets 1 pair, obliquely obovate or oblong, 2-6 x 1.5-5 cm, apex obtuse, base asymmetrical. Inflorescence of terminal racemes of heads, peduncles < 2 cm; calyx 2 mm; corolla 5-6 mm; stamens yellow or pink, tube included, to 1 cm. Legume coiled or curved, 50-100 x 7 mm, compressed and constricted between seeds; aril white, seeds black, 4-6 mm, shining.

GENERAL DISTRIBUTION: Florida, Greater Antilles, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Marti-

nique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Bread and cheese, Doctor Long, bois crabbe, groven eye, griffe-chatte, tendra à caulilou-rivière, collier-diable, bébé!

NOTE: Throughout their larger range, these plants show a great variation in size, in leaf size and shape and in the development of stipular spines. Several species have been recognized outside of the Lesser Antilles but considerable field study is still required to define the taxa correctly.

PROSOPIS L.

Prosopis L., Syst. Nat. ed. 12, 2: 282, 293. 1767.

Syn.: *Nettuma* Raf., Sylva Tellur. 119. 1838.

Trees or shrubs, armed with straight stipular spines or unarmed. Leaves bipinnate, usually with gland between pairs of pinnae; petiole produced into short subulate appendage; pinnae with many leaflets. Inflorescence axillary, flowers in spikelike racemes, small, perfect. Calyx campanulate, 5-toothed; petals 5, pubescent within; stamens 10, distinct or nearly so, exserted anthers with small terminal gland. Legume linear, subterete or somewhat flattened, coriaceous, indehiscent, septate or constricted between seeds, mesocarp spongy; seeds compressed.

TYPE SPECIES: *Prosopis spicigera* L. = *Prosopis cineraria* (L.) Druce.

A genus of 44 species, 1 in Africa, 3 Middle East, the rest American.

REFERENCE: A. Burkhart, J. Arnold Arb. 57: 219-249, 450-525. 1976.

Prosopis juliflora (Sw.) DC., Prodr. 2: 447. 1825.

FIGURE 146.

Basionym: *Mimosa juliflora* Sw., Prodr. 85. 1788.

Type: Jamaica. Browne cited but no specimens can be found and a neotype is needed for this important species.

Small tree < 13 m, flat-topped with spreading branches, armed with slender straight stipular spines 0.6-2.5 cm. Petioles 1-4 cm, pinnae 1, rarely 2 pairs; leaflets 12-20 pairs, linear-oblong, 7-16 x 1.5-3.2 mm, apex obtuse or mucronulate, strongly few-veined, margin ciliate. Inflorescence axillary, 5-10 cm on peduncles < 1 cm; flowers densely packed; calyx 1 mm; corolla 2.5 mm, pale yellow, villose within; stamens 4 mm. Legume compressed, 70-200 x 10-16 mm, slightly curved, pale yellow, irregularly constricted once or several times; seeds brown, 6 mm, embedded in white sweet pulp.

GENERAL DISTRIBUTION: Greater Antilles, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Barbuda!, Montserrat!, Barbados!.

NOTE: The fruits are regarded as nutritious for animals and the plant as excellent source of honey.



FIGURE 146 (left). *Prosopis juliflora*, x 0.25. FIGURE 147 (right). *Samanea saman*, x 0.25.

SAMANEA Merr.

Samanea Merr., J. Wash. Acad. Sci. **6**: 46. 1916.

Unarmed trees. Leaves bipinnate, photosensitive but not to touch. Inflorescences axillary, peduncles solitary or clustered, flowers perfect, capitate or umbellate; calyx tubular to campanulate, 5-toothed; corolla 5-lobed; stamens many, united below, filaments long exserted. Legumes compressed, indehiscent, straight, coriaceous with fleshy mesocarp well developed; seeds without aril, pleurogram distinct.

TYPE SPECIES: *Mimosa saman* Jacquin = *Samanea saman* (Jacq.) Merr.

Samanea saman (Jacq.) Merr., J. Wash. Acad. Sci. **6**: 47. 1919. FIGURE 147.

Basionym: *Mimosa saman* Jacquin, Fragm. Bot. 15. 1800.

Lectotype: Venezuela, *Jacquin*, Fragm. Bot. t. 9.

Syn.: *Calliandra saman* (Jacq.) Griseb., Fl. Brit. W. Indian Is. 225. 1860.

Pithecolobium saman (Jacq.) Benthams, London J. Bot. **3**: 216. 1844.

Tree, < 20 m, trunk short but branches widely spreading. Leaves bipinnate; pinnae 2-6 pairs, small circular gland between pairs; leaflets 3-8 pairs, obliquely oblong to obovate, 2-4 x 1-3 cm, apex obtuse and mucronulate, shiny above but finely pubescent below. Inflorescences axillary or terminal and of several many-flowered umbels; peduncles 5-10 cm; calyx 6.5-7.5 mm; corolla pink with green lobes, < 1.3 cm, villous; filaments white below where united, reddish above. Legume straight or only slightly curved, 10-25 x 1-2.5 cm, about 1.5 cm thick, compressed, valves thick, wrinkled, with raised margins, indehiscent,

mesocarp fleshy; seeds oblong 5-8 x 7 x 4 mm with portion inside pleurogram elevated, dull brown.

GENERAL DISTRIBUTION: Greater Antilles, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Barbuda!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Saman, rain tree, coco tamarind, arbre à la pluie, marsave.

NOTE: Widely planted in tropical countries for its distinctive shape and its shade. The leaflets move to a vertical position at night and apparently collect moisture which is released when the leaves straighten in the morning — hence the name rain tree. The fleshy pods when mature smell of honey and are relished by children and animals.

SCHRANKIA Willd.

Schrankia Willd., Sp. Pl. 4: 1041. 1806, nom. cons.

Syn.: *Leptoglottis* DC., Mém. Légum. 451. 1825.

Morongia Britton, Mem. Torrey Bot. Club 5: 191. 1894.

Perennial herbs or shrubs, with arching stems, subscaudent or prostrate, mostly armed with internodal recurved prickles. Stipules narrowly linear or setaceous; leaves bipinnate; pinnae 1-8 pairs; leaflets small, numerous. Inflorescences axillary, solitary or paired, with pedunculate globose heads. Flowers perfect, pink or purple; calyx minute, campanulate, 5-toothed; corolla tubular, lobes ovate; stamens 10, free, anthers without apical glands. Legumes linear, beaked or beakless, quadrangular or subterete, prickly, longitudinally dehiscent; seeds < 16.

TYPE SPECIES: *Schrankia aculeata* Willd., nom. illeg. = *Mimosa quadrivalvis* L. = *Schrankia quadrivalvis* (L.) Merr.

Schrankia leptocarpa DC., Prodr. 2: 443. 1825.

FIGURE 148.

Type: Santo Domingo, Poiteau.

Syn.: *Leptoglottis leptocarpa* (DC.) Standley, J. Wash. Acad. Sci. 15: 458. 1925.

Slender procumbent or climbing herb, < 2.5 m, pilose pubescent and armed with decurrent prickles. Stipules 3-4 mm; petiole 2-6 cm, prickly; pinnae 2-3 pairs; leaflets 10-20 pairs, linear 6-10 x 2 mm, apex obtuse or acute, glabrous. Peduncles 4-15 mm; stamens 5 mm. Legume subterete, 10-15 cm with a slender beak < 3 cm, pilose and armed with erect, often branched prickles; seeds oblong, 5 x 3 mm, flattened, black, shiny.

GENERAL DISTRIBUTION: Greater Antilles, Central America, South America, introduced to Africa and Asia.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Vincent!.



FIGURE 148 (left). *Schrankia leptocarpa*, x 0.3. FIGURE 149 (right). *Zygia latifolia*, x 0.3.

ZYGIA P. Browne

Zygia P. Browne, Civ. Nat. Hist. Jamaica t. 22, f. 3. 1756.

Unarmed trees. Leaves bipinnate. Inflorescences short-peduncled, borne on old wood mostly below leaves; flowers perfect; calyx minute, 5-toothed; corolla tubular, 5-toothed; filaments united at base, tube exserted. Legume flattened, slightly curved, splitting along ventral suture; seeds without aril, flattened.

TYPE SPECIES: *Mimosa latifolia* L. = *Zygia latifolia* (L.) Fawcett & Rendle.

NOTE: *Zygia* is a nomen rejciendum to the conserved *Pithecellobium*. It can be used if the generic separation is recognized.

✓ ***Zygia latifolia*** (L.) Fawcett & Rendle, Fl. Jamaica 4(2): 150. 1920. FIGURE 149.

Basionym: *Mimosa latifolia* L., Syst. Nat. ed. 10, 2: 1310. 1759.

Type: Martinique, Plum., Pl. Amer. t. 9. 1756.

Syn.: *Zygia arborescens* J. St. Hil., Expos. Fam. Nat. 2: 246. 1805. (Type: Browne, Civ. Nat. Hist. Jamaica t. 22, f. 3.)

- *Inga latifolia* (L.) Willd., Sp. Pl. 4: 1020. 1806.

- *Pithecolobium latifolium* (L.) Benth., London J. Bot. 3: 214. 1844.

- *Calliandra latifolia* (L.) Griseb., Fl. Brit. W. Indian Is. 225. 1860.

Shrub or tree, < 8 m. Stipules ovate lanceolate, 12 mm, striate, usually persistent; leaves to 30 cm; petiole < 1 cm; pinnae 1 pair, 1 pinna commonly wanting,

bearing gland between pinnae and leaflets; leaflets 3-5, upper two opposite, elliptic to oblong 5-20 x 2-9 cm, apex acuminate, obliquely narrowed at base, glabrous. Flowers in sessile or very short-stalked heads on old wood below leaves; calyx campanulate, 1.5 mm; corolla tubular, 6-7 mm, striate, pubescent on lobes; staminal tube exerted to 5 mm, free portion of filaments 5 mm. Legume slightly curved or twisted, 7-10 x 2-2.5 cm, often constricted between seeds; seeds orbicular, 1.5 cm dia., flattened.

GENERAL DISTRIBUTION: Jamaica, Hispaniola, Trinidad, Central America, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: *Acacia rivièrè*, pois-doux bâtard, pois-doux rivièrè.

CAESALPINIOIDEAE

by Elizabeth A. Kellogg

Flowers zygomorphic or actinomorphic, not papilionaceous; adaxial (upper) petal innermost and overlapped by the lateral petals; fertile stamens 10 or fewer (numerous in *Swartzia*), distinct or only slightly connate; leaves bipinnately compound or pinnately compound.

CULTIVATED TAXA

Amherstia nobilis Wallich. A native of Burma, this handsome tree with large brilliantly bicolored flowers is largely infertile in the Lesser Antilles and is difficult to propagate vegetatively. The few trees have usually been reserved for ceremonial planting. Rare in botanical gardens or public parks.

Copaifera officinalis L. was once cultivated on Dominica and Martinique, but is not represented by any recent collections.

Colvillea racemosa Bojer ex W. Hooker was once grown in the Botanic Garden on Dominica.

Peltophorum is a genus of about 15 species, all of which have bipinnate leaves and strongly flattened, indehiscent, winged fruits. Two species are cultivated in the Lesser Antilles, *P. linnaei* and *P. pterocarpum*; the former has a racemose inflorescence, whereas the latter has a large panicle. *Peltophorum linnaei* has been collected on Dominica and is reported from Barbados; *P. pterocarpum* is known from Guadeloupe, St. Lucia and Barbados. In addition, *P. dubium* has been reported from Barbados and *P. ferrugineum* from Antigua, but we have not seen any specimens to document these reports.

Saraca indica L. was cultivated at the St. Pierre botanical garden, Martinique, in 1885.

KEY TO THE GENERA

1. Leaves 2-foliolate.
 2. Anthers dehiscent by terminal pores or slits *Senna*
 2. Anthers longitudinally dehiscent.
 3. Legumes indehiscent; leaves with abaxial gland dots in center of areoles; petals densely gland-dotted *Hymenaea*

3. Legumes dehiscent; leaves and petals not gland-dotted *Bauhinia*
1. Leaves with 1 or more than 2 leaflets.
 4. Leaves bipinnate, with rachis reduced to a stiff spine; pinnae 2 or 4 per leaf, with flattened winged rachis; leaflets alternate, < 8 mm long *Parkinsonia*
 4. Leaves once or twice pinnate, but not as above.
 5. Leaves bipinnate.
 6. Calyx valvate; petals > 4 cm long; legumes > 32 cm long *Delonix*
 6. Calyx imbricate; petals < 2.5 cm long; legumes < 11 cm long *Caesalpinia*
 5. Leaves once pinnate.
 7. Petals 0 or 1; stamens numerous; leaflets 1 or 5 (7) *Swartzia*
 7. Petals > 1; stamens 10 or fewer; leaflets > 1.
 8. Expanded petals 3; fertile stamens 3, filaments fused to form a flattened band; legume surface crustaceous *Tamarindus*
 8. Expanded petals 5; fertile stamens > 3, or if 3 then filaments not forming a flat band; legume surface not crustaceous.
 9. Anthers opening by terminal or basal pores or by terminal slits.
 10. Three longest stamens with sigmoid filaments; legumes indehiscent *Cassia*
 10. Three longest stamens with straight filaments; legumes dehiscent or indehiscent.
 11. Bracteoles 0; legumes indehiscent or inertly dehiscent; androecium zygomorphic *Senna*
 11. Bracteoles 2; legumes elastically dehiscent; androecium actinomorphic *Chamaecrista*
 9. Anthers opening longitudinally.
 12. Leaflet apex rounded, truncate or emarginate; ovary glabrous *Haematoxylon*
 12. Leaflet apex acuminate; ovary densely pubescent to velutinous.
 13. Inflorescence a cylindric raceme; bracts < 1.5 mm long; legumes < 9 cm long *Crudia*
 13. Inflorescence a densely bracteate raceme; bracts 6-33 mm long; legumes > 13 cm long *Brownea*

BAUHINIA L.

Bauhinia L., Sp. Pl. 1: 374. 1753.

Trees, shrubs or lianas. Stipules with axillary colleters, the abpetiolar one often elongate, enlarged or modified into an intrastipular spine. Leaves alternate, petiolate, with 2 separate or partly fused leaflets, midvein extended to a terete caducous tip, nerves basal, margin entire. Inflorescences axillary or terminal, or opposite leaves, racemes or panicles, bracteate. Flowers showy, hypanthium more or less elongate; calyx limb spathaceous or splitting into 5 reflexed lobes, or crateriform; petals 5, often clawed; stamens 10, fertile ones 1 to 10, remainder staminodial, slightly fused below; ovary long- or short-stipitate, stigma oblique and truncate or flaring. Legumes linear, dehiscent, brown; seeds many, flattened, orbicular to oblong.

LECTOTYPE SPECIES: *Bauhinia divaricata* L.

A genus of about 300 species, distributed throughout the tropics. For more

information, see H. C. D. deWit, *Reinwardtia* **3**: 381-539. 1956; R. B. Ledin & E. A. Menninger, *Natl. Hort. Mag.* **35**: 182-200. 1956; R. P. Wunderlin, *Ann. Missouri Bot. Gard.* **63**: 346-354. 1976; and *ibid.*, **70**: 95-127. 1983. Although deWit neotypified several of the Linnaean names in the genus, syntypes are available for most of them and the neotypification is unnecessary.

KEY TO THE SPECIES

1. Plants with intrastipular spines *B. aculeata*
1. Plants not spiny.
 2. Tendril-bearing vines; calyx campanulate, ribbed, not spathaceous *B. guianensis*
 2. Shrubs or trees; calyx spathaceous.
 3. Leaves gray-glaucous adaxially; petals orange-red; arching shrub .. *B. galpinii*
 3. Leaves not gray-glaucous adaxially; petals white, yellow, pink, red, or purplish, but not orange-red; shrubs or trees.
 4. Petals linear, 8-12 cm long; fruits broader above middle, 22-31 cm long, 2.3-2.8 cm wide *B. multinervia*
 4. Petals < 8 cm long, oblanceolate, ovate, suborbicular or deltate (linear in *B. racemosa*, but then < 0.2 cm wide); fruits linear, < 22 cm long, or, if over 22 cm then < 2.3 cm wide.
 5. Petals yellow or white; legumes < 13 cm long.
 6. Petals yellow, standard with dark red splotch at base; flowers mostly 2 per inflorescence *B. tomentosa*
 6. Petals white, without red splotch; inflorescence a raceme of several flowers.
 7. Fertile stamen 1, much exserted; leaves often divided to base; native shrubs, sometimes cultivated *B. divaricata*
 7. Fertile stamens 5 or 10; leaves lobed ca. 1/3 their length; cultivated shrubs or trees.
 8. Petals < 1 cm long; inflorescences flexuous; leaves < 4 cm long; semiscandent shrubs *B. racemosa*
 8. Petals > 3.5 cm long; inflorescences erect; leaves mostly much > 4 cm long.
 9. Apex of bud with 5 slender lobes; fertile stamens 10; shrubs *B. acuminata*
 9. Apex of bud entire; fertile stamens 5; trees; non-fruiting specimens of *B. variegata* var. *candida*
 5. Petals pink, red, lilac, violet, cream or white, but flowers never wholly white or yellow (except for *B. variegata* var. *candida*, flowering specimens of which key out above); legumes > 15 cm long.
 10. Fertile stamen 1; flowering in summer *B. monandra*
 10. Fertile stamens 3 to 6; flowering in fall and winter.
 11. Inflorescences often flexuous, > 8 cm long; bracts and bracteoles caducous.
 12. Fertile stamens 3 *B. purpurea*
 12. Fertile stamens 4 or 5 (6) *B. blakeana*
 11. Inflorescences erect, < 4 cm long; bracts and bracteoles persistent.
 13. Flowers some combination of pink, red, lilac, violet, cream or white *B. variegata* var. *variegata*
 13. Flowers white with green veins *B. variegata* var. *candida*

Bauhinia aculeata L., Sp. Pl. 1: 374. 1753.

FIGURE 150.

Lectotype: Colombia or Venezuela, Herb. Cliff. 156.1 (BM, photo A!).

Syn.: *Bauhinia ungula* Jacq., Fragm. Bot. 22, tab. 15, f. 1. 1801. (Type: Jacquin's plate.)

Shrub to 5 (10) m tall; bark smooth, gray; young stems, petioles and leaves densely puberulent. Stipules linear, 1.2-1.5 mm long, puberulent, caducous; intrastipular spines straight or curved, 2-12 mm long, glabrous. Leaves with petioles 4-9 (30) mm long; blades broadly ovate to broadly obovate or more or less oblong in outline, 1.1-3.2 x 1.4-3.8 cm, generally broader than long, scarcely divided to divided 1/2 their length, membranous, often notably lighter below, glabrescent with age, base cordate to truncate, margin persistently puberulent, apex of lobes rounded. Inflorescences axillary, flowers 1 to 3; peduncles 1-3 mm long; bracts and bracteoles triangular to linear, 0.7-1.4 mm long, puberulent. Flowers with pedicel 6-10 mm long; hypanthium 4-6 mm long; calyx limb spathaceous, 15-32 mm long, puberulent abaxially, caducous, apex not lobed; petals clawed, 15-45 x 2 mm, glabrous or basally puberulent, white, blade oblanceolate; fertile stamens 10, filaments puberulent below; ovary stipitate, strigose on sutures; stigma flaring. Legumes linear, 5.2-9.8 (15) x 1-1.5 (2.5) cm, sparsely puberulent to glabrescent, gray-striate; seeds oblong, ca. 5 (-11) mm long, gray-brown.

GENERAL DISTRIBUTION: Central and South America, West Indies.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

NOTES: Flowers on Lesser Antillean specimens are much smaller than those on cultivated plants, and also at the small end of the range reported by Wunderlin (1983).

Although *Bauhinia bauhinoides* Macbride has been reported from Grenada, plants so identified are almost certainly assignable to *B. aculeata*. *Bauhinia bauhinoides* is a spinose species of Paraguay and Brazil, but has only 5 stamens and distinctive linear petals that are lacinate tomentose for most of their length. We have seen no Lesser Antillean plants matching this description.

Bauhinia acuminata L., Sp. Pl. 1: 375. 1753.

Lectotype: Ceylon, Herb. Hermann #148, Vol. 1: 42 (BM).

Cultivated shrub to 3 m tall; young stems, petioles and inflorescence axes with sparse curled pubescence. Stipules lance-linear, 5-12 mm long, acuminate, curled puberulent, caducous; largest colleter swollen, divergent, 1.5-2.1 mm long. Leaves with petioles 1.5-4 cm long; blades ovate, broadly ovate or suborbicular, 5.4-11.3 (20) x 3.7-11.3 cm, divided about 1/3 their length, membranous, glabrous adaxially, densely puberulent abaxially, base cordate to rounded, apex of lobes acute. Inflorescences axillary racemes, 2.5-5.8 cm long; peduncles negligible; bracts and bracteoles lance-linear, 3-9 mm long, puberulent, especially on margins, caducous. Flowers with pedicel 6-12 mm long; hypanthium 5-9 mm long; calyx limb spathaceous, 28-37 mm long, with few scattered hairs abaxially, apex of 5 spidery lobes 1.7-4.1 mm long; petals not clawed, elliptic to oblanceolate,

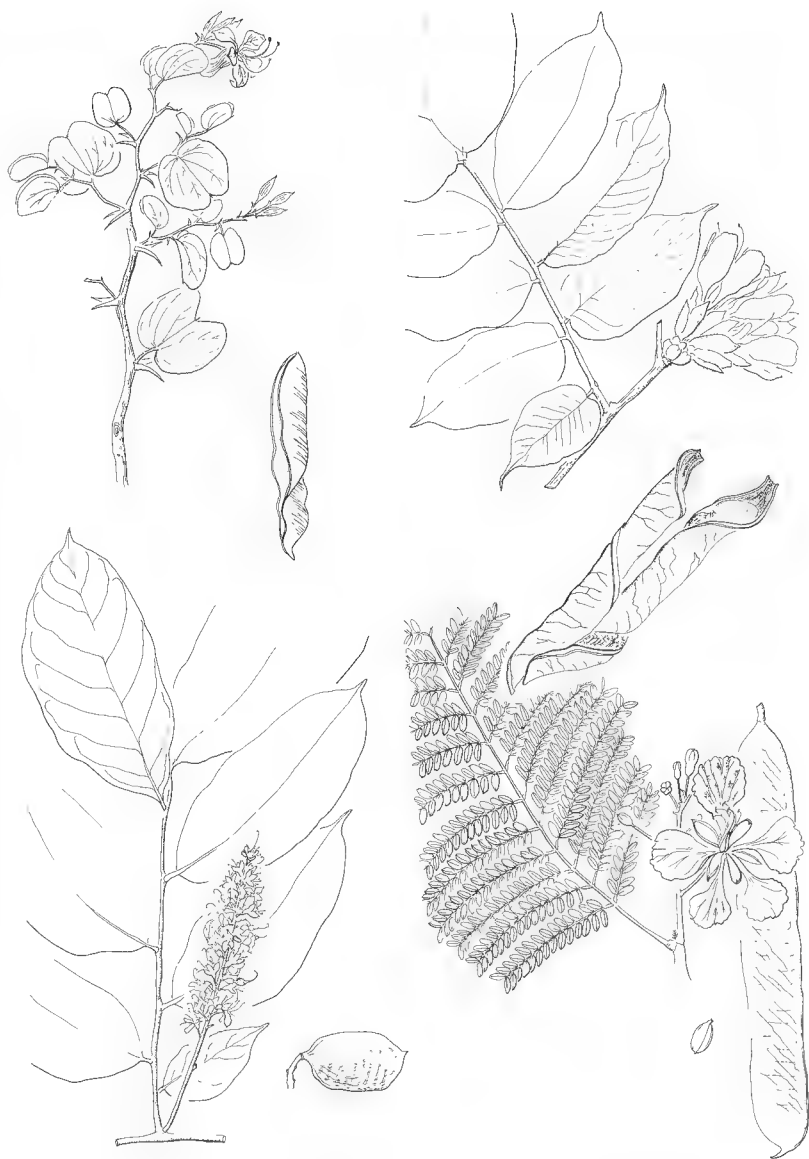


FIGURE 150 (upper left). *Bauhinia aculeata*, x 0.33. FIGURE 151 (upper right). *Brownea latifolia*, x 0.33. FIGURE 152 (lower left). *Crudia glaberrima*, x 0.33. FIGURE 153 (lower right). *Delonix regia*, x 0.33: flower, x 0.2; fruit, x 0.15.

39-49 (60) x 20-25 (30) mm, glabrous, white; fertile stamens 10, filaments strigose at base; ovary stipitate, strigose on sutures, stigma peltate, bilobed. Legumes linear, 7.5-15 x 1.7-1.8 cm, glabrous, brown; seeds suborbicular, ca. 10 mm in diameter.

GENERAL DISTRIBUTION: Native to southeast Asia; cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Dominica!.

NOTES: DeWit (1956) points to some confusion in the typification of this species; we are following his conclusions.

***Bauhinia blakeana* Dunn, J. Bot. 46: 325. 1908.**

Type: Hongkong Botanic Gardens, Hongkong Herb. #1722.

Cultivated tree to 7 m tall; young stems, petioles and inflorescence axes densely pubescent. Stipules deltate, 2-3 mm long, puberulent, caducous; longest colleter subulate, 0.6-2.5 mm long. Leaves with petioles 2.0-4.3 cm long; blades broadly ovate to suborbicular, 3.4-17 x 3.8-17 cm, divided about 1/3 their length, membranous, puberulent abaxially, adaxially glabrous, base cordate to cuneate, apex of lobes rounded. Inflorescences axillary or terminal racemes, 9.5-29 cm long; peduncles 1.4-3.6 cm long; bracts and bracteoles deltate to lance-acuminate, 2-5 mm long, puberulent. Flowers with pedicel 7-12 mm long; hypanthium 18-20 mm long; calyx limb spathaceous, 29-42 mm long, velutinous abaxially, apex rounded; petals clawed, 58-82 x 29-32 mm, glabrous, pink to red-purple, blade oblanceolate; fertile stamens 4 (6), filaments glabrous; ovary long-stipitate, strigose on sutures, stigma flaring. Legumes unknown, probably never formed.

GENERAL DISTRIBUTION: First collected in Hong Kong; known only from cultivation.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!.

NOTES: This species appears never to set fruit, and is thought to be a sterile hybrid of *Bauhinia purpurea* and *B. variegata*.

***Bauhinia divaricata* L., Sp. Pl. 1: 374. 1753.**

• Lectotype: Jamaica, Herb. Cliff. 156.2 (BM).

Syn.: *Bauhinia porrecta* Sw., Prodr. 66. 1788. (Type: Jamaica, Swartz s.n. (holotype, s, not seen).)

Mandarus divaricatus (L.) Raf., Sylva Tellur. 122. 1838.

Casparia porrecta (Sw.) Kunth ex Griseb., Fl. Brit. W. Indian Is. 213. 1860.

Bauhinia caribaea Jennings, Ann. Carnegie Mus. 11: 127. 1917. (Type: Cuba, Havana, north of Caleta Grande, Jennings 630 (holotype, CM).)

Casparia divaricata (L.) Kunth ex Britton & Rose, N. Amer. Flora 23: 215. 1930.

Shrub or tree to 10 m tall; young stems, petioles and leaves densely puberulent. Stipules triangular to linear, 0.8-2.1 mm long, puberulent, acuminate, caducous; largest colleter subcylindrical, 0.7-1.5 mm long, rounded. Leaves with petioles 0.8-3.5 cm long; blades broadly ovate, suborbicular, obovate or even trapezoidal, 1.9-11 x 1.7-8.5 cm, membranous, divided 1/4 their length to all the way to base,

sparingly to densely puberulent on both surfaces, especially abaxial veins, base truncate, rounded or cordate, apex of lobes generally acute but sometimes rounded. Inflorescences axillary or terminal racemes, 3-9 cm long; peduncle 0.5-2.3 cm long; bracts and bracteoles deltate to lanceolate or lance-linear, 0.8-2.3 mm long, puberulent. Flowers with pedicel 5-13 (20) mm long; hypanthium 2-5 mm long; calyx limb spatheous, 9-18 mm long, puberulent abaxially, apex with 5 filiform lobes; petals long-clawed, 11-27 x 2.3-8 mm, glabrous, white turning pink, blade deltate, apex acuminate; fertile stamen 1, much exceeding corolla, filament glabrous; ovary long-stipitate, sparsely puberulent, stigma capitate. Legumes linear, 7.2-10 (12) x 0.7-1.5 cm, glabrescent, brown; seeds oblong, 6-8 (10) x 4-6 (8) mm.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles except Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!

Bauhinia galpinii N. E. Brown, Gard. Chron. ser. 3, 9: 728. 1891.

Syntypes: Transvaal at Dorn Spruit Spelunken, *Nelson* 409; near Barberton, Mrs. Saunders (*Wood* 3885); *Galpin* 421 (K).

Cultivated shrub to 9 m tall; branches arching; young stems, petioles and leaves densely rusty puberulent. Stipules linear to lance-linear, 1.1-5.3 mm long, puberulent, caducous; largest colleter subulate, 0.7-1.5 mm long. Leaves with petioles 6-15 mm long; blades broadly ovate, 2.2-6.6 x 2.7-9.5 cm, much broader than long, divided 1/4 their length or less, membranous, glabrous and glaucous adaxially, sparsely puberulent abaxially, base truncate to cordate, apex of lobes rounded. Inflorescences axillary racemes, 4.8-5.8 cm long; peduncle 1.1-2.1 cm long; bracts and bracteoles linear, 1.5-4.8 mm long, puberulent. Flowers with pedicel 2-7 mm long; hypanthium 20-26 mm long; calyx limb spatheous, 18-30 mm long, splitting into 5 lobes below, remaining joined above, puberulent abaxially; petals clawed, 28-40 x 12-21 mm, glabrous adaxially, sparsely puberulent abaxially with both normal hairs and scattered yellow trichomes, red to red-orange, blade ovate to suborbicular; fertile stamens 3, filaments glabrous; ovary long-stipitate, sericeous, stigma punctate. Legumes linear, 9.0-12.5 x 1.5-2.5 cm, puberulent, tomentose within; seeds obliquely oblong, 11-14 x 7-9 mm, chestnut brown.

GENERAL DISTRIBUTION: Native to South Africa; cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Vincent!.

NOTES: DeWit (1956) describes this species as lacking a hypanthium, but this appears to be erroneous.

Bauhinia guianensis Aublet, Hist. Pl. Guiane 1: 377, t. 145. 1775.

Type: French Guiana, *Aublet* s.n. (BM, photo A!).

Syn.: *Bauhinia outimouta* Aublet, Hist. Pl. Guiane 1: 375, t. 144. 1775. (Type: French Guiana, *Aublet* s.n. (BM).)

Bauhinia splendens Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 321. 1824.

(Type: Venezuela, Orinoco River, *Humboldt 1186* (B-WILLD).)

Schnella splendens (Kunth) Benth., J. Bot. (Hooker) 2: 97. 1840.

Schnella excisa Griseb., Fl. Brit. W. Indian Is. 214. 1860. (Type: Trinidad, *Crueger 57* (holotype, K).)

Bauhinia excisa (Griseb.) (Griseb.) Hemsley, Biol. Cent.-Amer., Bot. 1: 337. 1880.

Schnella excisa Stehlé, Bull. Mus. Hist. Nat. (Paris) sér. 2, 18: 189. 1946, sphaema.

Liana; bark smooth; young stems, petioles, leaves and inflorescences densely rufous-pubescent; old stems flattened. Stipules broadly deltate, ca. 0.7 mm long, caducous; colleters not enlarged. Leaves with petioles 2-7.8 mm long, with prominent upper and lower pulvini; blades broadly ovate to suborbicular, 3.8-18.3 x 4.4-16.2 cm, divided nearly to base on young specimens, merely apically notched on older stems, coriaceous, glabrescent, base cordate, apex of lobes rounded, acute or acuminate. Inflorescences axillary or terminal racemes, 12.5-16.3 cm long; peduncles 0.6-4.0 cm long; bracts and bracteoles linear, 1.5-2 mm long, caducous. Flowers strongly scented, with pedicel 2-3.5 mm long; hypanthium negligible; calyx limb urceolate in bud, becoming broadly bowl-shaped in fruit, 4-7 mm long, strongly nerved, densely rufous-pubescent abaxially, somewhat less so adaxially; petals clawed, 14-18 mm x 10 mm, sericeous abaxially, white, blade ovate; fertile stamens 10, shorter than calyx, filaments glabrous; ovary short-stipitate, densely rufous-sericeous, stigma oblique. Legumes oblong, wider above middle, 5-8 x 1.5-2.5 cm, tomentulose.

GENERAL DISTRIBUTION: Mexico, Central America, South America, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!.

COMMON NAMES: Tiane grand-bois, liane-boudin tordue.

Bauhinia monandra Kurz, J. Asiat. Soc. Bengal 42(2): 73. 1873.

Type: Burma, *Brandis s.n.*

Syn.: *Bauhinia kappleri* Sagot, Ann. Sci. Nat. Bot. sér. 6, 13: 317. 1882. (Type: French Guiana, *Kappler s.n.* (P).)

Bauhinia krugii Urban, Ber. Deutsch. Bot. Ges. 3: 83. 1885. (Syntypes: Puerto Rico, *Krug 278*; St. Thomas, *Eggers 322* (B, presumed destroyed).)

Caspareopsis monandra (Kurz) Britton & Rose, N. Amer. Flora 23: 217. 1930.

Cultivated shrub or small tree to 15 m tall; bark gray, smooth; young stems, leaves and petioles puberulent, branches glabrescent. Stipules linear to deltate or oblong, 3-11 mm long, tomentose, caducous; largest colleter subulate, 1.0-2.4 mm long. Leaves with petioles 2-6 cm long; blades broadly ovate to suborbicular, 3.1-14.7 (20) x 3.9-15.9 cm, broader than long, divided < 1/2 their length, membranous, glabrescent, base truncate to cordate, apex of lobes rounded. Inflorescences terminal racemes, 3-6 cm long, several-flowered; peduncle 4-11 mm long; bracts and bracteoles linear to lanceolate, 3-8 mm long, acuminate, puberulent, caducous. Flowers with pedicel 8-19 mm long; hypanthium 20-37 mm long; calyx limb spatheous, 15-23 mm long, strigose abaxially, caducous; petals clawed, 35-52 x 16-24 mm, pink or lavender, standard mottled red or purple, claw puberulent below, especially on standard, blade oblanceolate, glabrous to very sparsely

puberulent; fertile stamen 1, filament puberulent below; ovary stipitate, stipe puberulent, stigma punctate. Legumes linear, 15.4-20.4 (22) x 2-2.6 cm, brown, woody, glabrous; seeds ovate to oblong, 10-11 x 7-9 mm, dark brown to black.

GENERAL DISTRIBUTION: Native of Asia, now widely cultivated.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Eustatius!, St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAME: Napoleon's cocked hat.

NOTE: A summer flowering species.

Bauhinia multinervia (Kunth) DC., Prodr. 2: 515. 1825.

Basionym: *Pauletia multinervia* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 316. 1824.

Type: Venezuela, "prope Caracas, Caripe et Montana de Capaya," *Humboldt & Bonpland* 576 (holotype, P; IDC 6209. 156: III. 7, photo!).

Syn.: *Bauhinia megalandra* Griseb., Fl. Brit. W. Indian Is. 213. 1860. (Lectotype: St. Vincent, *Guilding s.n.* (K, photo at A!).)

Cultivated tree to 6 (10) m tall; young branches, petioles and leaves densely rufous-pubescent. Stipules deltate, ca. 1-2 mm long, acuminate, puberulent, caducous. Leaves with petioles 1.2-4.5 cm long; blades ovate to oblong, 7.6-15.5 x 5.1-11.8 (14) cm, membranous, divided 1/3 to 1/2 their length, adaxially glabrous, abaxially puberulent especially on veins, base cordate to rounded, apex of lobes rounded. Inflorescences terminal leafy racemes or panicles; peduncle 1-3 cm long; bracts and bracteoles annular, ca. 1 mm long, puberulent. Flowers with pedicel \leq 5 mm long; hypanthium 20-30 mm long; calyx limb 8-12 cm long, splitting into 5 lobes below, united above, densely puberulent abaxially; petals clawed, 8-12 x 0.5-1 cm, glabrous, white, blade linear; fertile stamens 10, filaments puberulent; ovary stipitate, sericeous, purple, stigma oblique. Legumes oblong, broader above middle, 22-31 x 2.3-2.8 cm, glabrescent; seeds suborbicular, 15 x 10-15 mm, dark brown.

GENERAL DISTRIBUTION: Puerto Rico, Venezuela, Suriname, Brazil, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Petit flamboyant, mountain ebony.

Bauhinia purpurea L., Sp. Pl. 1: 375. 1753.

Lectotype: Rheede 1: 59, t. 33.

Cultivated tree to 13 m tall; young stems and inflorescence axes densely puberulent. Stipules deltate, 1-2.4 mm long, puberulent, persistent; largest coler to 2.2 mm long, subulate. Leaves with petioles 1.6-6 cm long, glabrous to sparsely puberulent; blades ovate to obovate, 5-14.2 x 4.4-13.6 cm, membranous, divided 1/3 to 1/2 their length, glabrous adaxially, minutely and sparsely puberu-

lent abaxially, base cordate to truncate, apex of lobes rounded to acute. Inflorescences axillary or terminal racemes, 8.6-14.5 cm long; peduncle 0.6-2.5 cm long; bracts and bracteoles deltate to lanceolate, 1.2-3.2 cm long. Flowers with pedicel 6-12 mm long; hypanthium 8-16 mm long; calyx limb spathaceous, 17-36 mm long, abaxially velutinous, often splitting into 5 lobes below, remaining fused above; petals clawed, 36-51 x 9-19 mm, glabrous adaxially, sparsely puberulent abaxially at least on claw and midvein, reddish-purple, blade narrowly elliptic; fertile stamens 3, filaments glabrous; stipe, ovary and style pilose; stigma oblique. Legumes linear, 21.1-31.8 x 1.7-2.3 cm, glabrous or sparsely puberulent on sutures, red-brown; seeds ovate, 13-14 x 11 mm, dull brown.

GENERAL DISTRIBUTION: Southeast Asia; cultivated elsewhere in tropics.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!, Barbados.

NOTES: Blooming October to December.

Bauhinia racemosa Lam., Encycl. 1: 390. 1783.

Type: India, *Sonnerat s.n.* (P, n.v.).

Semiscandent cultivated shrub; young stems, petioles, leaves and inflorescence axes sparsely to densely puberulent. Stipules deltate, 1.0-1.2 mm long, caducous; largest colleter subulate, to 2 mm long. Leaves with petioles 1-1.4 cm long, sparsely puberulent; blades broadly ovate, 2.1-3.9 x 2.5-4.5 cm, divided about 1/3 their length, membranous, glabrous adaxially, sparsely puberulent on abaxial veins, lobed about 1/3 their length, base cordate, apex of lobes rounded. Inflorescences racemes, terminal or sub-opposite leaves, 7.5-11.5 cm long; peduncle 1-4 mm long; bracts and bracteoles lanceolate, 1-1.3 mm long, puberulent, caducous. Flowers with pedicel 1.3-2.5 mm long, puberulent; hypanthium 3.2-5.0 mm long; calyx spathaceous, 4.8-8.2 mm long, puberulent abaxially; petals long-clawed, 7.4-8.8 x 0.9-2.0 mm, puberulent abaxially, white, blade lance-linear; fertile stamens 10, filaments and anthers sparsely strigose; ovary short-stipitate, sparsely puberulent, stigma oblique. Legumes linear, 4.4-10 x 1.2-1.4 cm, puberulent, yellow-brown to tan; seeds oblong, 6 x 4 mm, dull brown.

GENERAL DISTRIBUTION: Native of India; cultivated elsewhere in tropics.

DISTRIBUTION IN LESSER ANTILLES: Dominica!.

Bauhinia tomentosa L., Sp. Pl. 1: 375. 1753.

Lectotype: Burmann, Thesaurus Zeylanicus t. 18. 1737.

Syn.: *Alvesia bauhinioides* Welw., Apont. 587. 1858. (Type: Angola, *Welwitsch 556* (LISU, BM).)

Alvesia tomentosa (L.) Britton & Rose, N. Amer. Flora 23: 208. 1930.

Cultivated tree to 5 (8) m tall; young stems, leaves and petioles densely puberulent. Stipules linear to lanceolate, 2-11 mm long, caducous or persisting; largest colleter subulate, 0.9-2.1 mm long. Leaves with petioles 1.0-2.7 cm long; blades broadly ovate to suborbicular, 1.9-6.3 (10) x 2.5-7 (11) cm, broader than long, mostly divided 1/3 to 1/2 their length, membranous, abaxially puberulent, adaxially glabrous, base truncate to rounded or cuneate, apex of lobes rounded.

Inflorescences axillary with 2 (1 to 3) flowers; peduncle 11-20 mm long; bracts and bracteoles linear, 4-11 mm long, puberulent. Flowers with pedicel 8-10 mm long; hypanthium 4-5 mm long; calyx limb spathaceous, 14-27 mm long, abaxially densely puberulent, caducous; petals not clawed, broadly ovate to suborbicular, 30-58 x 24-54 mm, overlapping, glabrous, pale yellow, one with dark red splotch near base; fertile stamens 10, filaments sericeous below, much shorter than petals; ovary sericeous, stigma spreading, peltate. Legumes linear, 6-12.5 x 1.1-1.7 cm, sparsely puberulent, pale brown; seed obliquely oblong, 6.8 x 4.5 mm.

GENERAL DISTRIBUTION: Native to Asia; widely cultivated.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAME: Fleur du Sacré-Coeur.

Bauhinia variegata L., Sp. Pl. 1: 375. 1753.

Type: See typical variety.

Cultivated tree to 10 m tall, flowering before leaf expansion; bark wrinkled, gray; young stems sparsely to densely puberulent. Stipules deltate, stiffly minutely puberulent, caducous; longest colleter filiform. Leaves with petioles sparsely to densely puberulent, more densely so on pulvini; blades broadly ovate to suborbicular, divided less than 1/3 their length, membranous, glabrous adaxially, minutely puberulent abaxially, especially along veins, base cordate, truncate or rounded, apex of lobes rounded. Inflorescences short axillary racemes, stiffly and minutely puberulent; peduncle negligible; bracts and bracteoles deltate, puberulent. Flowers with pedicel and hypanthium puberulent; calyx limb spathaceous, abaxially puberulent; petals short-clawed, glabrous, blade oblanceolate, fertile stamens 5 (6), filaments glabrous; ovary long-stipitate, strigose on sutures, stigma small. Legumes linear, 16.2-30 x 1.7-2.5 cm, glabrous, brown; seeds ovate to suborbicular, 12-15 x 10-12 mm, dull tan.

Bauhinia variegata L. var. **variegata**

Type: Not designated.

Stipules 1-2 mm long; longest colleter 1-1.9 mm long. Leaves with petioles 1.5-5.5 cm long; blades 2.8-16.2 x 3.8-16.8 cm. Inflorescences 0.6-2.8 cm long; bracts and bracteoles 1.2-2.5 mm long. Flowers with pedicel 2-4 mm long; hypanthium 10-27 mm long; calyx limb 14-26 mm long; petals 29-61 x 14-32 mm, pink, red, lilac, violet, cream or white or combinations of colors, but never wholly white, the veins often darker shades, standard often more clearly variegated.

GENERAL DISTRIBUTION: Native to China; cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!.

Bauhinia variegata var. **candida** (Aiton) Buch.-Ham., Trans. Linn. Soc. London 13: 496. 1822.

Basionym: *Bauhinia candida* Aiton, Hort. Kew 2: 49. 1789.

Type: Plant from India, cultivated at Kew.

Syn.: *Bauhinia candida* Roxb., Hort. Bengal. 31. 1814, *nomen nudum*; Fl. Ind. ed. 1832, 2: 318. 1832. (Type: Not determined).

Bauhinia variegata L. var. *candida* (Roxb.) Voigt, Hort. Suburb. Calcutt. 253. 1845.

Bauhinia alba Buch.-Ham. ex Wallich, Cat. sub. 5796. 1830, *nomen nudum*.

Bauhinia variegata L. var. *alboflava* deWit, Reinwardtia 3: 412. 1956. (Type: Singapore Bot. Gard., Lawn Z, 25 Jan. 1928, *Kiah s.n.* (holotype, SING).)

Stipules 1.5-2.2 mm long; longest colleter 0.9-1.2 mm long. Leaves with petioles 2-4.8 cm long; blades 3.6-14.0 x 4-15.4 cm. Inflorescences 1.5-3.3 cm long; bracts and bracteoles 1.5-2.2 mm long. Flowers with pedicel 2-3 mm long; hypanthium 8-23 mm long; calyx limb 17-28 mm long; petals 35-57 x 20-28 mm, white with green veins.

GENERAL DISTRIBUTION: Native to Asia.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

NOTES: There is considerable variation in herbaria annotations and in the literature as to who reduced the name *Bauhinia candida* to varietal rank. Buchanan-Hamilton cited *B. candida* Willd. (1799), Aiton (1811) and Roxburgh (1814) in establishing the variety under *B. variegata*. Aiton had in fact published the epithet in 1789, and the 1811 reference was simply a later edition of Hortus Kewensis. Twenty-three years after Buchanan-Hamilton, Voigt again made the varietal combination, this time citing Roxburgh, not Aiton. Voigt's combination is prohibited by Buchanan-Hamilton's previous use of the name at the varietal level.

BROWNEA Jacq.

Brownea Jacq., Enum. Syst. Pl. 6, 26. 1760, *nom. et orth. cons.*

Syn.: *Hermesias* Loeffl., Iter. Hisp. 278. 1758, *nom. rej.*

Trees or shrubs. Stipules elongate, sheathing buds, caducous. Leaves large, even-pinnate, often drooping; leaflets opposite or subalternate, entire, often acuminate and with a gland at base. Inflorescence a head or dense raceme, terminal or on old wood, nodding; each flower with a bract and spathe of fused bracteoles, these often colored and caducous. Flowers showy; sepals 4-5; petals 4-5, clawed; stamens 10-15, filaments connate basally; ovary stipitate; stipe adnate to receptacular tube. Legume compressed, woody, dehiscent.

TYPE SPECIES: *Brownea coccinea* Jacq.

A genus of ca. 30 species, native to tropical America.

Brownea latifolia Jacq., Fragm. Bot. 25. t. 17. 1801.

FIGURE 151.

Type: Venezuela.

Syn.: *Brownea speciosa* Reichb. ex DC., Prodr. 2: 477, pro syn. *B. rosa*. (Type: Trinidad, Sieber 68.)

Trees to 8 m tall; young branches and twigs densely pubescent. Leaves with

petioles 0.4-3.3 cm long; blades even-pinnate, 6.4-19.4 cm long; leaflets 3 to 6 pairs, accrescent distally, elliptic, oblong, lanceolate or obovate, 4.1-16.3 x 1.7-6.3 cm, proximal pair sometimes suborbicular, apex long acuminate, base cuneate to rounded or subcordate; glabrous, membranous to coriaceous; petiolule dark, thick. Inflorescences compact bracteate racemes, terminal, nodding; bracts distally accrescent, broadly ovate to ovate, 0.6-3.3 x 0.6-1.7 cm, densely pubescent abaxially, more sparsely so adaxially. Flowers on pedicels 4-5 mm long, densely pubescent; spathe-like bract surmounting each pedicel, bilabiate, 18-19 mm long, densely pubescent; calyx lobes oblong, truncate, 18-19 mm long; petals long-clawed, expanding to an obovate blade 3.3-4.3 x 1.2-1.4 cm, glabrous, coral-colored; stamens 9-11, monadelphous, 3.2-4.4 mm long; anthers 3 mm long; ovary tawny velutinous; style slender 3.1-3.5 cm long; stigma punctate. Legumes flattened, 13.5-16.5 x 2.8 cm, curling on dehiscence.

GENERAL DISTRIBUTION: Venezuela, West Indies.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Vincent!, Barbados!.

NOTES: *Brownea coccinea* Jacq., *B. grandiceps* Jacq. *B. rosa* Bergius, and *B. rosa-del-monte* Bergius have all been cited by various authors as occurring in the Lesser Antilles. The identity of these species and their relationship to *B. latifolia* is unclear. The genus is currently under revision by Dr. L. Aristeguieta of Caracas, Venezuela; adequate treatment of the genus and *B. latifolia* in particular awaits his results.

CAESALPINIA L.

Caesalpinia L., Sp. Pl. 1:380. 1753.

Syn.: *Guilandina* L., Sp. Pl. 1: 381. 1753. (Type species: *Guilandina bonduc* L.)
Poinciana L., Sp. Pl. 1: 380. 1753. (Type species: *Poinciana pulcherrima* L.)
Bonduc Miller, Gard. Dict. abr. ed. 1754.

Trees, shrubs, or climbers, often armed and pubescent. Stipules present, although often minute and caducous. Leaves alternate, petiolate, bipinnate; pinnae opposite; leaflets opposite or alternate, sessile or with short petiolules, entire, base asymmetric. Inflorescences axillary or terminal racemes; bracts persistent or caducous. Flowers perfect or imperfect, with clear joint between pedicel and hypanthium; calyx lobes 5, lowermost covering bud; petals 5; stamens 10, free, filaments compressed; pistil sessile or short-stipitate. Legumes dehiscent or indehiscent; seeds 1 to 10, ovate to orbicular, compressed or not.

TYPE SPECIES: *Caesalpinia brasiliensis* L.

A pantropical genus of about 100 species. For more information, see T. A. Hattink, *Reinwardtia* 9: 1-69. 1974.

CULTIVATED SPECIES

Caesalpinia bahamensis Lam. was cultivated on St. Vincent and is represented by a Guilding specimen at Kew.

Caesalpinia mexicana Gray has been cultivated on Barbados.

Caesalpinia punctata Willd. was reported from Antigua by Urban (*in Symb. Antill.* 2: 284. 1900), but we have seen no recent specimens from any of the Lesser Antilles.

Caesalpinia sappan L. was once cultivated on Barbados.

KEY TO THE SPECIES

1. Leaflets more than 28 per pinna, < 2 mm wide; legumes compressed, curled from ends and margins *C. coriaria*
1. Leaflets fewer than 24 per pinna, > 4 mm wide; legumes compressed or inflated, if curled then only after dehiscence.
 2. Flowers with pedicels > 13 mm long; legumes not prickly; cultivated trees and shrubs.
 3. Flowers reflexed at anthesis; filaments 11-15 mm long, ca. same length as petals; legumes yellow-brown, not coiled after dehiscence *C. decapetala*
 3. Flowers not reflexed at anthesis; filaments 42-60 mm long, much exceeding petals; legumes brown to gray, coiled after dehiscence *C. pulcherrima*
 2. Flowers with pedicels < 10 mm long; legumes prickly; sprawling native shrubs.
 4. Stipules > 0.9 cm long, foliaceous, bipinnate, persistent; seeds gray *C. bonduc*
 4. Stipules < 0.3 cm long, linear to subulate, caducous; seeds yellow, orange, red-orange, brown or black *C. ciliata*

***Caesalpinia bonduc* (L.) Roxb., Fl. Ind. ed. 1832, 2: 362. 1832, emend. Dandy & Exell.**

FIGURE 154.

Basionym: *Guilandina bonduc* L., Sp. Pl. 1: 381. 1753.

Lectotype: Ceylon, Herb. Hermann 3: 35 (BM).

Syn.: *Guilandina bonducella* L., Sp. Pl. ed. 2, 1: 545. 1762, *nom. illegit.*

Caesalpinia bonducella (L.) Fleming, Asiat. Res. 11: 159. 1810.

Guilandina crista (L.) Small, Fl. Southeastern U.S. 591. 1903.

Caesalpinia crista sensu Urban, Symb. Antill. 2: 269. 1900, and sensu Britton & Wilson, Bot. Porto Rico 5: 378. 1924, not L., 1753.

Scrambling shrub or vine to 6 (15) m tall, prickly, puberulent throughout. Stipules foliaceous, pinnate or bipinnate, 0.9-3.3 cm long, with 3 to 5 "leaflets," persistent. Leaves 25-80 x 11.6-25 cm, with straight or curved prickles on all axes; petioles 3.8-9 cm long; pinnae 8 to 16 (22); leaflets 8 to 14 (24) per pinna, with petiolules 0.5-0.6 mm long, blades ovate to elliptic, 2.6-5.3 x 1.3-3.3 cm, base truncate, rounded or subcordate, apex acute to rounded, mucronate. Racemes axillary and terminal, 16-32 (60) cm long, with axes with straight prickles; peduncles 3.2-19 cm long; bracts narrowly lanceolate, 8-14 mm long, tapering proximally and distally, persistent. Flowers imperfect, with pedicels 3.5-5.5 (9.5) mm long; hypanthium turbinate to campanulate, 2.5-4.5 mm long, like pedicels rufous-puberulent; calyx lobes ovate to elliptic, 4-6 mm long, rufous-puberulent abaxially, tawny-puberulent adaxially; petals oblanceolate, 6-8 x 1.3-3 mm, yellowish, margins puberulent; filaments hirsute; ovary sessile, minute in staminate flowers, ca. 3 mm in pistillate. Legumes inflated, 2.8-7.6 (9) x 2-4.2 cm, prickly puberulent, dehiscent; seeds several, ovate to suborbicular, 16-20 x 15-16 mm, smooth, gray.

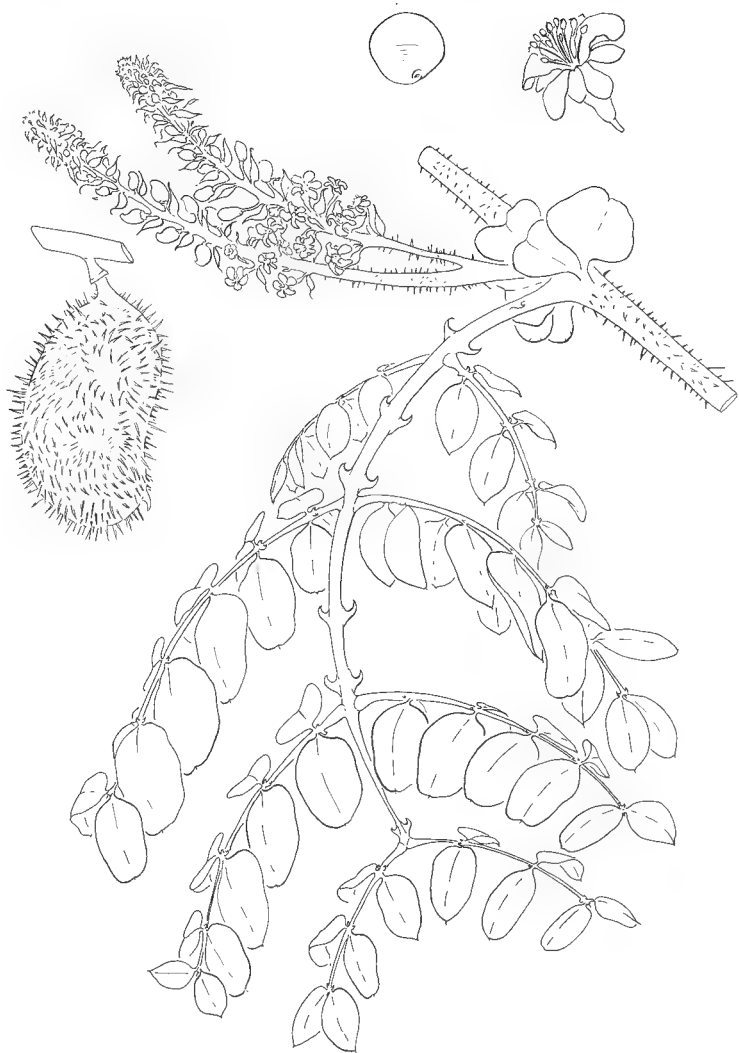


FIGURE 154. *Caesalpinia bonduc*, x 0.45; flower, x 2.

GENERAL DISTRIBUTION: Florida, Bermuda, Mexico and Central America, West Indies, South America, Old World tropics.

COMMON NAMES: Z'yeux à chatte, canique grise; grey nicker, horse-nicker, Bahama Brazilletto, konik, gwu sac borik, gwenzyé bouwikt.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

NOTES: For details of the nomenclature of this and similar *Caesalpinia* species, see J. E. Dandy & A. W. Exell, J. Bot. **76**: 175-180. 1938, as well as Hattinck (loc. cit.).

Caesalpinia major (Medikus) Dandy & Exell (= *C. intermedia* Urban) is distinguished from *C. bonduc* by its larger leaves with subulate stipules. It appears not to occur in the Lesser Antilles.

Caesalpinia ciliata (Bergius ex Wikström) Urban, Symb. Antill. **2**: 275. 1900.

Basionym: *Guilandina ciliata* Bergius ex Wikström, Kongl. Svenska Vetenskapsakad. Handl. **1825**: 431. 1825.

Type: St. Bart's, *Fahlberg s.n.* (s, n.v.).

Syn.: *Guilandina bonduc* sensu Griseb., Fl. Brit. W. Indian Is. 204. 1860, not L., 1753.

Guilandina melanosperma Eggers, Fl. St. Croix 46. 1879. (Type: St. Croix.)

Caesalpinia grisebachiana Kuntze, Revis. Gen. Pl. **1**: 166. 1891. Renaming of *Guilandina bonduc* sensu Griseb., 1860.

Guilandina grisebachiana (Kuntze) Urban in Duss, Fl. Phan. Antill. Franç. **229**. 1897.

Caesalpinia divergens Urban, Symb. Antill. **2**: 271. 1900. (Syntypes: St. Thomas, Eggers ed. Rensch 544; *Hornbeck s.n.* (c).)

Caesalpinia ovalifolia Urban, Symb. Antill. **2**: 273. 1900. (Type: Bahamas, Nassau, *Northrop 116* (holotype, b, presumed destroyed).)

Caesalpinia melanosperma (Eggers) Urban, Symb. Antill. **2**: 276. 1900.

Guilandina antiguensis Britton & Rose, N. Amer. Flora **23**: 339. 1930. (Type: Antigua, *Rose, Fitch & Russell 3265* (NY).)

Scrambling shrub or vine, prickly; stems puberulent, with or without prickles. Stipules linear to subulate, 0.7-3 mm long, caducous. Leaves 15-40 x 10-21 cm, with axes puberulent, with recurved prickles; petioles 1.6-8.3 cm long; pinnae 8 to 14; leaflets 8 to 16 per pinna, with petiolules 0.8-1.1 mm long, blades suborbicular to ovate or elliptic, 0.9-3.3 x 0.7-2.2 cm, abaxially puberulent, adaxially glabrescent, base cuneate to rounded, apex rounded, mucronate. Racemes axillary and terminal, 9.7-34.5 cm long, puberulent throughout, prickly below; peduncles 1.8-5.1 cm long; bracts lanceolate to obovate, 3.5-5.5 mm long, acuminate, caducous. Flowers imperfect, with pedicels 2.1-5 mm long; hypanthium turbinate to campanulate, 1.7-4.5 mm long; calyx lobes oblong, elliptic or oblanceolate, 4.3-6.2 mm long, densely puberulent abaxially and adaxially; petals oblanceolate, 5-10.5 x 1.7-4.2 mm, glabrous or sparsely puberulent abaxially, yellow, sometimes with orange markings on standard; filaments 3.3-6.1 mm long, tomentose; pistil minute in staminate flowers. Legumes ovate to elliptic, 4.9-7.4 x 3.3-4.5 cm, swollen, prickly, puberulent, dehiscent; seeds ovate to globose,

15-21 x 14-18 mm, glabrous, yellowish, orange, red-orange, brown, or black, often horizontally striate.

GENERAL DISTRIBUTION: Hispaniola, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Antigua!, Saba!, St. Kitts!, La Désirade!, Guadeloupe!, Grenada!.

COMMON NAMES: Canique jaune (rouge, blanche).

NOTES: Both *Caesalpinia divergens* and *C. ovalifolia* were described from incomplete material, but their descriptions suggest that they belong here.

Caesalpinia ciliata as described here is a homogeneous taxon in all characters except seed color, which varies widely. There are also a few specimens with relatively long petals, but this character does not correlate with any other.

Caesalpinia coriaria (Jacq.) Willd., Sp. Pl. 2: 532. 1799.

Basionym: *Poinciana coriaria* Jacq., Select. Stirp. Amer. Hist. 123, t. 175, f. 36. 1763.

Type: Jacquin's plate.

Syn.: *Libidibia coriaria* (Jacq.) Schldl., Linnaea 5: 193. 1830.

Spreading tree to 10 m tall, cultivated and naturalized; stems glabrous to sparsely puberulent, unarmed, with prominent lenticels. Stipules caducous. Leaves 5.5-14.8 x 3.6-8 cm, with all axes puberulent; petioles 4-13 mm long; pinnae 11 to 19; stipels slender, ca. 0.8 mm long, caducous; leaflets 28 to 56 per pinna, with petiolules 0.1-0.3 mm long, blades oblong, 2-9.3 x 1-1.9 mm, glabrous, base cuneate, rounded or subcordate, apex rounded. Racemes branched, on short lateral branches, 1.2-7.5 cm long, axes glabrous; peduncles 2.5-6 mm long; bracts caducous. Flowers with pedicels 1-2 mm long; hypanthium turbinate, 2-2.5 mm long; calyx lobes subequal, oblong to elliptic, 2.8-4 mm long, glabrous, becoming reflexed; petals short-clawed, 2.3-3.8 x 1.3-2.6 mm, yellow-green, blade ovate to suborbicular; filaments 4.2-4.5 mm long, hirsute, only slightly exerted; ovary and styles glabrous, stigma punctate. Legumes irregularly curled from ends and margins, 4.1-4.8 x 1.6-1.8 cm, glabrous; seeds compressed.

GENERAL DISTRIBUTION: Mexico and Central America, West Indies, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Antigua!, Saba!, St. Eustatius!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Divi-divi.

Caesalpinia decapetala (Roth) Alston in Trimen, Handb. Fl. Ceylon 6: 89. 1931.

Basionym: *Reichardia ?decapetala* Roth, Nov. Pl. Sp. 212. 1821.

Type: India, *Heyne s.n.* (holotype, ?; isotype, K).

Syn.: *Caesalpinia sepiaria* Roxb., Hort. Bengal. 32. 1814, *nom. nud.*; Fl. Ind. ed. 1832, 2: 360. 1832. (Type: India, *Roxburgh s.n.* (holotype, ?; isotypes, BM, K).)

Biancaea sepiaria (Roxb.) Todaro, Hort. Bot. Panorm. 1: 4. 1875.

Small tree or sprawling shrub to 8 (25) m tall, densely puberulent throughout;

stems arching armed with recurved prickles. Stipules foliaceous, hastate, 8-11 mm long, abruptly acuminate, caducous. Leaves 20-40 x 10-18 cm, with recurved prickles on all axes; petioles 3.1-5 cm long; pinnae 14 to 20; leaflets 16 to 24 per pinna, with petiolules 0.3-1 mm long, blades oblong to oblanceolate, 9-20 x 4-7 mm, adaxial surface darker than abaxial, base rounded to cuneate, apex rounded. Racemes axillary and terminal, 18-33 cm long; peduncles 2-10.7 cm long; bracts lanceolate, 7-9 mm long, acuminate, caducous. Flowers reflexed at anthesis, with pedicels 13-20 mm long, spreading; hypanthium spreading, 3-5 mm long; calyx lobes subequal, oblong, 7-12 mm long; petals short-clawed, 9-13 x 7-12 mm, glabrous, yellow, spreading at anthesis, blade ovate to suborbicular; stamens exserted, filaments 11-15 mm long, tomentose; ovary and style puberulent, stigma spreading. Legumes oblong-elliptic, 5.6-8.5 (11) x 2-2.6 cm, woody, puberulent, dehiscent but not coiling, yellow-brown; seeds ovate, compressed, ca. 9-10 x 5-6 mm, black or variegated.

GENERAL DISTRIBUTION: Native of Asia; widely cultivated.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

COMMON NAMES: Arrête-boeuf, canieroc; wait-a-bit.

Caesalpinia pulcherrima (L.) Sw., *Observ. Bot.* 166. 1791.

Basionym: *Poinciana pulcherrima* L., *Sp. Pl.* 1: 380. 1753.

Lectotype: India, Breyne, *Exot. pl. cent. t.* 61. 1678.

Shrub to 5 m tall, cultivated and widely escaped, glabrous throughout; stems prickly. Stipules lanceolate, ca. 2 mm long, caducous. Leaves 22-34.5 (40) x 12.9-18 cm, without prickles, but with long-acuminate stipels, 0.6-1.5 mm long, caducous; petioles 3.7-6.1 cm long; pinnae 9 to 22; leaflets 10 to 24, with petiolules 0.8-1.2 mm long, blades oblong to obovate, 6-24 x 4-11 mm, glabrous, base rounded to cuneate, apex rounded, truncate, or emarginate, mucronulate. Racemes terminal, 13-37 (50) cm long; peduncles 2.5-7 cm long; bracts lance-acuminate, 4.5-5.5 mm long, caducous. Flowers with pedicels 20-75 mm long, spreading; hypanthium turbinate, 4-8 mm long; calyx lobes unequal, 9-20 mm long, 4 oblanceolate, 1 larger and cucullate; petals clawed, 15-25 x 11-21 mm, red to yellow-orange or yellow, or some combination of these, blade broadly ovate; stamens exserted, filaments 42-60 mm long, tomentose below; ovary glabrous, style slender, stigma punctate. Legumes linear, 7.5-10.5 x 1.3-2.0 cm, compressed, brown to gray, dehiscent, coiling after dehiscence; seeds obovate to obcordate, 8-10 x 6-8 mm, dull medium brown.

GENERAL DISTRIBUTION: Native to South America; widely cultivated.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, Barbuda!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Barbados-pride, flower pride, Spanish carnation, flower fence, dwarf poinciana; petit flamboyant, baraguette, orgueil de Chine, macata, fleur de paon, oeillet d'Espagne.

CASSIA L.

Cassia (Tour.) L., Sp. Pl. 1: 376. 1753.

Cultivated trees (ours), deciduous or semideciduous. All Lesser Antillean species densely pubescent on young twigs, leaves, inflorescence axes and ovaries. Stipules usually caducous. Leaves paripinnate, phyllotaxy distichous. Petioles eglandular. Pedicels bibracteolate at base or above, but below middle. Flowers racemose, showy; sepals nearly equal, obtuse, ovate, obovate or elliptic; petals 5, imbricate, homomorphic or nearly so, clawed, obovate, oblong or elliptic. Stamens 10, the 3 longest antesealous with sigmoid filaments. Anthers all or mostly fertile, the longest dehiscent by apical slits and basal pores, the shorter ones dehiscent by basal pores only. Legume short-stipitate, woody, indehiscent, elongate, pendulous, septate. Seeds numerous, transverse, exarcolate, funicle filiform.

TYPE SPECIES: *Cassia fistula* L.

Our treatment follows that of Irwin and Barneby, Mem. New York Bot. Gard. 35: 1982. They describe 14 species occurring in the Americas, of which 4 are reported from the Lesser Antilles.

NOTE: One other species, *C. graveolens* Colla, is listed under *Cassia Dubiae* by Irwin & Barneby. It was described from a non-flowering seedling and a pod ("E seminibus . . . missis a cl. BERTERO anno 1818 e Guadalupa . . . In silvis et fruticetis insulae Guadalupae . . . BERTERO.") Irwin & Barneby conclude from the description that it could be assigned either to their *Senna mollissima* or to *Senna atomaria*.

KEY TO THE SPECIES OF CASSIA

1. Fertile anthers pilose; standard 2-callose at base; hypanthium short, not clearly differentiated from pedicel; leaflets oblong, parallel-sided, not > 5.5 cm long; adaxial groove of rachis interrupted at pulvinules; pods bicarinate ventrally, unicarinate dorsally, massive, woody, up to 5 cm thick *C. grandis*
1. Fertile anthers glabrous, or, if pubescent, only sparsely so dorsally; petals all very nearly alike; hypanthium clearly differentiated from pedicel; leaflets ovate to lanceolate, or, if oblong, then the adaxial groove of the rachis continuous past the pulvinules; pods terete.
 2. Fertile anthers glabrous, lustrous; pedicels 5-14 mm; petals connivent at anthesis to form a subglobose perianth; leaflets oblong, parallel-sided, not > 5.5 cm long; the adaxial groove of rachis continuous past pulvinules; stipules semisagittate, 2-lobed; pod 35-50 x 1.3-1.7 cm, puberulent *C. moschata*
 2. Fertile anthers sparsely pubescent adaxially; pedicels > 2 cm; corolla spreading at anthesis; leaflets ovate to lanceolate; stipules lanceolate, one-lobed.
 3. Bracts and bracteoles present at anthesis; petals pink or red, drying tan, puberulent adaxially; long stamens with a globose or ellipsoid nodule on middle portion of the filament; leaflets usually more than 8 pairs, the largest not over 9 cm long, petiole adaxially grooved; seeds embedded in a dry pithy coin-shaped disc *C. javanica*
 3. Bracts and bracteoles caducous well before anthesis; petals yellow, glabrous; long stamens without nodules on filaments; leaflets 3-7 pairs, the longest 9-21

cm, ovate, acute, the petiole nearly terete; seeds embedded in pulp
..... *C. fistula*

***Cassia fistula* L., Sp. Pl. 1: 377. 1753.**

FIGURE 155.

Type: Hermann s.n., BM (hb. Hermann); choice of lectotype to be made from 2: 29, 84 or 5: 7.

Trees up to 20 m, bark smooth, gray. Young twigs, leaves, and inflorescences covered with a fine indumentum, becoming sparse with age. Leaves up to 35 (55) cm long, petioles terete to 10 cm long. Stipules erect, 1-2 mm, soon deciduous. Leaflets 3-7 (8) pairs, up to 16 (21) cm x 7.5 cm (8.5) wide, ovate-lanceolate to elliptic, chartaceous, glabrous, finely pinnately veined with prominent midvein, acute at the apex, base cuneate, the upper surface commonly darker green than the lower; pulvinules wrinkled, dark. Racemes axillary, drooping mostly from current growth, occasionally branched, up to 36 cm long; bracts and bracteoles lanceolate, early caducous. Pedicels 2.5-5.5 cm at anthesis, clearly articulate with the hypanthium; hypanthium 2-5.5 mm. Sepals 6-9 mm long, puberulent becoming reflexed. Petals yellow, drying translucent papery with prominently darker veins, the longest 19-29 (32) mm. Anthers of the 3 longest stamens sparsely pubescent dorsally, opening by basal slits, the 4 mid-length ones glabrous, opening by basal pores. Pistil strigulose, stipitate, the stipe 5-7 (9) mm, stigma oblique. Fruit woody, with one or two rows of seeds, (30) 42 (60) x (1.5) 1.8 (2.3) cm, terete, the sutures immersed; exocarp dark, sparsely pubescent. Seeds embedded in thick pulp, 7.5-10 mm, smooth.

GENERAL DISTRIBUTION: Native to southeast Asia, now planted throughout tropics.

DISTRIBUTION IN THE LESSER ANTILLES: St. Barts!, Antigua!, St. Eustatius!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Canéficier, canéfica, casse-habitant, cassia stick tree, kas, casse.

***Cassia grandis* L. f., Suppl. Pl. 230. 1782.**

Type: Partly based on specimens from Surinam, partly on *Cassia fistula brasiliiana flore incarnato* Breynius, Exot. pl. cent. 58, t. 21. 1678.

Trees up to 30 m but flowering at small size (some flowering specimens about 4 m tall), bark dull colored. Young twigs, leaves and inflorescences all covered with a dense indumentum, appearing quite felty on young parts. Leaves up to 29 (35) cm long, the petioles with a shallow adaxial groove interrupted at the pulvinules; stipules small triangular, early caducous, hard to see because of indumentum. Leaflets more than 8 pairs, oblong, parallel-sided, about equilateral, the largest (3.5) 4-5.5 (6.3) x 1.3-1.7 (2.4) cm, frequently more densely pubescent beneath and appearing lighter colored, becoming smaller proximally as well as distally, acute to more often obtuse, the bases truncate to more or less cordate. Racemes axillary, flowering on old wood, up to 25 (27) cm long; bracts and bracteoles early caducous, ovate to lanceolate. Pedicels 7-20 mm at anthesis,



FIGURE 155 (upper left). *Cassia fistula*: leaf, inflorescence, fruit, x 0.33; androecium, x 0.9.

FIGURE 156 (upper right). *Chamaecrista glandulosa* var. *swartzii*: flowering shoot, x

0.35; androecium and stamens, diagrammatic. FIGURE 157 (lower left). *Senna bicap-*

sularis, x 0.35. FIGURE 158 (lower right). Androecial types, after Irwin & Barneby:

Diagrammatic, a, *Senna uniflora*; b, *Senna pallida*; c, *Senna surattensis*; d, *Senna*

neglecta; e, *Senna spectabilis*; f, *Senna rugosa*.

the hypanthium not clearly articulated. Sepals 5-9 mm long, becoming reflexed, densely pubescent on both surfaces, the hairs often yellowish abaxially and gray adaxially. Petals pink to white, the longest 7-15 mm long; standard yellow-eyed, 2-callose at base. Anthers covered with dense hairs up to 0.5 mm; the 5 mid-length anthers opening by basal slits, the thecae becoming confluent, resupinate so that the tails point upward. Pistil thick pubescent, stipitate, the stipe 7-13 mm, curved so that the stigmatic cavity points back toward axis. Pod massive, woody, 40-63 x 3.5-4 (5) cm, bicarinate abaxially, unicarinate adaxially, the keels rounded. Seeds about 15 mm long, castaneous, smooth.

GENERAL DISTRIBUTION: Lowland Neotropics.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!.

Cassia javanica L., Sp. Pl. 1: 379. 1753.

Lectotype: Commelijn, Hort. Med. Amstelod. 1: 217. f. 111. 1697.

Syn.: *Cassia nodosa* Buch.-Ham. ex Roxb., Fl. Ind. ed. 1832, 2: 336. 1832. (Type specimen cultivated in Calcutta, distributed as *Wallich*, Herb. Ind. 5331, K, NY).

Trees to 40 m, the bark dark colored, trunk sometimes with spiniform branches. Young twigs, leaves and inflorescences finely and densely puberulent with short curved hairs. Leaves up to 26 (43) cm long, petioles with a shallow adaxial groove continuous past pulvinules; stipules 2-lobed, reniform or crescentic, early caducous. Leaflets 5-12 (20) pairs, ovate to oblong or oblong-lanceolate, the largest leaflets (3) 4-5.5 (9) x (1.5) 1.8-2.9 (3.2) cm, somewhat lighter colored beneath, apex rounded to more often acute and mucronate, base rounded to cuneate, pulvinule often dark. Racemes branched, terminal on lateral branches, up to 18 cm long, the lance-ovate, acuminate bracts and bracteoles persisting to anthesis. Pedicels (2.5) 3-3.5 (6) cm, with a clear point of articulation at the base of the 2-5.5 (6) mm hypanthium. Sepals 3.8-5 mm, reflexed, puberulent on both surfaces. Petals pink, drying pale yellow-brown, (15) 20-28 (35) mm. The 3 long (antepetalous) stamens having an ovoid or ellipsoid nodule about mid-point on the filament distal to the sigmoid bend, their anthers sparsely pubescent adaxially, opening by slits, the 4 mid-length anthers versatile, opening by basal pores. Pistil pubescent (to nearly glabrous), subsessile, the ovary curved so that the truncate stigma points back to the floral axis. Pod 38-40 (60) x 1.5 (1.4-2) cm, interior of seed cavities lustrous. Seed enclosed in a dry disc, (6.5) 8 mm long.

Irwin and Barneby recognize four varieties based on stipule characters, but only cite one (var. *indochinensis* Gagnepain, Fl. Gén. Indochine 2: 158. 1913.) as commonly cultivated in the West Indies. As all Lesser Antillean specimens at HUH lack stipules, it is impossible to assign them confidently to any particular variety. The name *Cassia nodosa* (see above) has commonly been applied to West Indian specimens, but this Irwin and Barneby synonymize with *C. javanica* var. *indochinensis*.

GENERAL DISTRIBUTION: Eastern Asia, but widely planted throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Dominica!, St. Lucia!, Barbados!.

COMMON NAMES: Stinking toe, pink cassia.

Cassia moschata Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 338. 1824.

Type: Humboldt 1479, Río Magdalena, prope Mompox (P-HBK.) (= Mompós, Bolívar, Colombia).

Trees of up to 28 m, with smooth gray bark. Young twigs, leaves and inflorescences covered with dense golden indumentum. Leaves up to 20 (26) cm long, petioles with a shallow but clearly marked adaxial groove continuous past pulvinules; stipules early caducous, drying dark purple, colored like the young leaves, semi-sagittate, the upper lobe more or less lanceolate, the lower smaller, more nearly triangular. Leaflets 7-12 (20) pairs, oblong, the proximal ones and sometimes also the distal ones somewhat shorter than the others, the longest 2.6-3.8 (5.3) x (.8) 1-1.5 (2) cm, either opposite or alternate, sometimes both occurring on different leaves on the same branch; apex rounded, bases unequal, rounded, truncate to subcordate. Racemes axillary from old wood, generally unbranched, up to 24 (32) cm; bracts and bracteoles early caducous (slenderly lance-subulate). Pedicels (5) 7-12 (14) mm, the hypanthium clearly articulated, (2) 2.5-3 (3.5) mm. Sepals 5.5-9 mm, minutely puberulent on both sides. Petals golden, 8-15 mm long, connivent at anthesis to form a sub-globose perianth. Anthers often glabrous, lustrous, but occasionally with some sparse pubescence near the slits. Pistil pubescent, stipitate, the stipe 5-12 mm, curved. Pod (not in our collection) terete 35-50 x 1.4-1.7 cm, minutely puberulent. Seeds embedded in a thin pulp, 7-8 mm long, smooth, castaneous.

GENERAL DISTRIBUTION: Colombia, Venezuela, Brazil, Guyana, Central America, planted elsewhere in the Neotropics.

DISTRIBUTION IN LESSER ANTILLES: Barbados!.

CHAMAECRISTA Moench

by George W. Staples

Chamaecrista (Breyne) Moench, Methodus 272. 1794.

Herbaceous, suffrutescent or frutescent, annual or perennial plants of tropical and mild temperate areas. Indumentum of simple, incurved, appressed, erect or spreading trichomes, or glandular viscid trichomes. Stipules squamate to foliaceous, usually persisting, often prominently parallel-veined. Leaves paripinnate, petiolate, with pulvinus; petiole slender, grooved adaxially, usually with one or more concave, sessile or stipitate glands; the rachis similarly grooved, sometimes with additional glands at the bases of the leaflets. Leaflets opposite, variously shaped, one to many pairs, sensitive or not, usually pinninerved or occasionally parallel or palmately nerved, membranaceous to coriaceous, glabrous or variously pubescent. Inflorescences often racemose, or reduced to 1

or few flowers, then the peduncles fused to the stem so the pedicels arise in a supra-axillary position, the pedicels bracteolate distally. Sepals 5, imbricate, often unequal; petals 5, heteromorphic, yellow, sometimes splashed with red/orange; androecium of 5-10 basifixed, radial or irregularly arranged, often heteromorphic stamens, the anthers longer than the corresponding filaments, dehiscent by an apical pore or slit. Legumes compressed, linear-oblong, obliquely tapering at both ends, sutures sometimes winged, the valves elastically coiling at dehiscence. Seeds compressed, obovate-rhombic-trapezoidal, glabrous, often pitted in regular rows or lines, with dilated funiculus.

TYPE SPECIES: *Chamaecrista nictitans* (L.) Moench = *Cassia nictitans* L.

Irwin & Barneby (Mem. New York Bot. Gard. **35**: 636. 1982) report 265 species for the genus worldwide, and we treat 5 species, with 2 infraspecific taxa, for a total of 6 taxa in the Lesser Antilles.

KEY TO THE SPECIES

1. Largest leaves with only 1-2 pairs of leaflets.
 2. Leaflets 1 pair, coriaceous, flabellately veined; stipules foliaceous, amplexicaule, to 17 mm long; plants glabrous to puberulent with incurved trichomes *C. diphylla*
 2. Leaflets 2 pairs, chartaceous, pinnately veined; stipules linear-lanceolate, 1-3 mm long; viscid glandulous on stems, petioles, axis and sepals *C. absus*
1. Largest leaves with 3 to many pairs of leaflets.
 3. Leaves with 3-6(-9) pairs of obovate, obcordate, oblong-emarginate, coriaceous leaflets; glands present at nearly all leaflet bases as well as on petiole *C. obcordata*
 3. Leaves with 6-22 pairs of elliptic-oblong, linear-oblong, or obovate-oblongeolate, chartaceous leaflets; glands occasionally present at bases of distal leaflets or wanting, petiolar glands present.
 4. Flowers larger, to 3 cm in diameter; pedicels in fruit (8-)16-26 mm long; plants shrubby to subarborescent, perennial *C. glandulosa* var. *swartzii*
 4. Flowers smaller, 1 cm in diameter or less; pedicels in fruit 3-9(-16) mm long; plants herbaceous to weakly lignescent, monocarpic.
 5. Petiolar glands in profile tack- or pin-shaped, slenderly stipitate, with the height \geq diameter of head; plants widespread in the Lesser Antilles *C. nictitans* ssp. *nictitans* var. *diffusa*
 5. Petiolar glands squatly obconic, drum-shaped, scutellate, or if stipitate then stoutly so, with diameter of head $>$ height of gland; known only from Guadeloupe (and reported from Martinique) *C. nictitans* ssp. *patellaria* var. *glabrata*

NOTE: Where sympatric in the Lesser Antilles, only the shape of the petiolar gland differentiates the two varieties of *C. nictitans*; all other morphological characters intergrade. Elsewhere in the West Indies the gland shapes intergrade as well. See Irwin & Barneby (Mem. NY Bot. Gard. **35**: 815, 824, 832, 834. 1982) for additional comments on these taxa.

Chamaecrista absus (L.) Irwin & Barneby, Mem. New York Bot. Gard **35**: 664. 1982.

Basionym: *Cassia absus* L., Sp. Pl. 1: 537. 1753.

Lectotype: (Ali, Fl. W. Pakistan 3: 71. 1971.) Collected in Ceylon between 1670 and 1677 by Paul Hermann (BM, hb. Hermann 2: fol. 4), specimens at L and Institut de France presumably isotypic.

Erect or procumbent, diffusely branched annual herbs, to 1 m tall. Monocarpic, weedy, circumtropical in disturbed sites. Stems cylindrical, smooth to faintly striate, tan to gray-brown, corky. Indumentum of two types: short, incurved, simple trichomes on all parts of the plant except the corolla; and erect, spreading glandular trichomes, basally swollen, slender and tapering above, 1-3 mm long, on the stems, petioles, leaf veins, pedicels, bracts, sepals, and legumes, but absent on the leaf blades and corollas; the plants thus viscid-glandular, or glabrescent. Leaves broadly oblong in outline; stipules linear-lanceolate, persisting, 1-3 mm; petioles slender, 20-45 mm, petiolar gland absent; leaflets two pairs, ovate to rhombic-elliptic, bases inequilateral, the proximal side rounded to subcordate, distally acute to cuneate, margins entire, apex obtuse to acute, mucronulate, 20-39 x 13-26 mm; chartaceous, softly puberulent to glabrescent. Inflorescences terminal, erect racemes, peduncles stout, 5-15 mm long; bracts deltoid-squamate, 1-2 mm long. Rachis slender, tapering, flowering from base to apex; pedicels spreading, 3-5 mm long. Sepals ovate-lanceolate, obtuse, \pm equal, 3-4 mm long; corolla yellow, spotted with red, to 1 cm diameter; stamens 5-7. Legume linear-oblong, with undulate margin, yellow-brown to reddish brown, (22-) 31-45 (-50) x 5-7 (-8) mm, viscid setose with long yellowish trichomes; 7-10-seeded. Seeds compressed obovate-rhombic to pyriform, shiny black, glabrous, faintly pitted, 3-4 mm long.

GENERAL DISTRIBUTION: Circumtropical.

DISTRIBUTION IN THE LESSER ANTILLES: The Grenadines, Grenada!

***Chamaecrista diphylla* (L.) Greene, Pittonia 4: 28. 1899.**

Basionym: *Cassia diphylla* L., Sp. Pl. 1: 376. 1753.

Lectotype: LINN 528.1.

Prostrate to ascending herbs, becoming lignescent at the base. Monocarpic or short-term perennials of low to mid-elevations in the Neotropics. Stems slender, striate, reddish, glabrous or slightly puberulent, to 40 cm tall. Stipules foliaceous, cordate-ovate to auriculate, basally inequilateral, margins entire, ciliolate, apices acuminate, prominently parallel veined, 4-17 x 2-5.5 mm, persisting, sheathing the old stems. Pulvinus small, wrinkled, hidden by the stipules; petiole short, not exceeding the stipules; petiolar glands 1 or 2, squat and sessile to shortly stipitate, black. Leaves reduced to a single pair of obliquely obovate, inequilaterally compressed leaflets; the bases inequilateral, obtuse to rounded proximally, acute to acuminate distally, margin entire, repand, apex rounded, 9-26 x 5.5-16 mm; flabellately nerved with 5 major parallel veins, glabrous, coriaceous. Flowers solitary from leaf axils, peduncles fused to the axis for 1-2 mm, pedicels slender, longer than the subtending leaf, 9-35 mm long, sparsely to densely pubescent with incurved trichomes; bracts and bracteoles ovate-lanceolate, persisting, 1-3 mm long. Sepals unequal, lanceolate-linear, 7-13 mm,

glabrous; corolla yellow, to 1 cm wide, resupinate so the heteromorphic petal is adaxial; stamens 10. Legume flat, linear, with tapered ends, 32-48 x 4.5-6 mm, pubescent with long, appressed yellowish trichomes. Seeds truncate-obovate, dull dark brown, glabrous, pitted, 2-3 mm.

GENERAL DISTRIBUTION: Of wide but discontinuous occurrence in the northern Caribbean, Mexico, Central America, and northern, eastern and Amazonian South America.

DISTRIBUTION IN THE LESSER ANTILLES: St. Kitts; Guadeloupe!; St. Vincent.

Chamaecrista glandulosa (L.) Greene var. **swartzii** (Wikström) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 784. 1982. FIGURE 156.

Basionym: *Cassia swartzii* Wikström, Kongl. Svenska Vetenskapsakad. Handl. **1825**: 430. 1826. "Hab. in Insula Sti Bartholomeae: *Forsström*."

Type: Holotype, Forsström s.n., labelled by Swartz "*Cassia* n. sp." (s), presumed isotype, labelled "Ins. Sti. Bartholomaei" *Forsström* s.n. (s).

Syn.: *Cassia polyadena* DC., Mém. Soc. Phys. Genève **2**(2):132. 1824. (Type: Guadeloupe, Bertero, misit Balbis 1820 (G-DC).)

Erect shrubs to 2 (-2.4) m tall, or prostrate in exposed windswept sites; widespread in open situations below 600 m elevation. Branches slender, ascending to erect; bark grayish to reddish brown, striate, glabrous, or sparsely pubescent with simple incurved trichomes. Leaves petiolate, the blade ovate-elliptic in outline; stipules erect, persisting, lanceolate-triangular, long acuminate, 1.5-7 (-8) mm long, with prominulous parallel veins; pulvinus wrinkled, pubescent; petioles with stipitate gland taller than the diameter of the head; often with additional glands at the bases of the distal leaflets; rachis with a shallow groove adaxially which is interrupted at the pulvinules, often with additional glands at the bases of the distal leaflets. Leaves with 6-18 (-23) pairs of linear-oblong, elliptic-oblong, to obovate-oblong leaflets, asymmetric at the base with the proximal side rounded and distal side cuneate, margins entire, apex rounded, obtuse, or emarginate, cuspidate; 5-18 (-25) x (1.2-) 2-4.5 (-9.5) mm; thin, subchartaceous, glabrous. Midvein slightly eccentric; lateral veins prominulous on both surfaces. Flowers usually solitary in the upper leaf axils; peduncles fused to the axis for 1-28 mm; pedicels 1-3, erect, (7-) 16-26 (-28) mm long. Bracts and bracteoles squamate to deltoid, persisting, 1-4 mm long. Sepals unequal, lanceolate-linear, 7-14 mm long, sparsely pubescent medially, glabrous marginally. Petals unequal, the abaxial petal twice as large as the others; corolla yellow, to 3 cm in diameter; stamens 10. Legume linear, slender, prominently sutured, reddish to dark brown, lighter above the seeds, (22-) 36-44 (-60) x (3-) 4-5 (-5.5) mm; glabrous to sparsely pubescent with incurved trichomes; seeds 7-12. Seeds rectangular-trapezoidal, dull dark brown, glabrous, pitted, 2-3 mm long.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands.

DISTRIBUTION IN THE LESSER ANTILLES: Anguilla!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Wild tamarind, broom cassia, Dutchman's butter, ti tanmawen, tanmawen djab.

Chamaecrista nictitans (L.) Moench ssp. **nictitans** var. **diffusa** (DC.) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 833. 1982.

Basionym: *Cassia diffusa* DC., Mém. Soc. Phys. Genève **2**(2): 130. 1824. — "née dans le jardin de Genève de graines recueillies dans l'île de Porto-Ricco, par ... Bertero, et ... communiquées par ... Balbis."

Type: Dated 1822 (holotype, G-DC).

Syn.: *Chamaecrista diffusa* (DC.) Britton, Ann. Missouri Bot. Gard. **2**: 41. 1915. not *C. glandulosa* var. *diffusa* O. Kuntze, 1891.

Low, spreading, herbaceous to suffrutescent plants to 50 (-60) cm tall; of wide occurrence in open sites with sandy to rocky soils, often weedy. Stems prostrate to assurgent, pinkish, striate, glabrous to puberulent with incurved trichomes. Leaves ovate in outline, petiolate. Stipules erect, persisting, slenderly lanceolate-acuminate, 3-11 mm long, with prominulous veins. Petioles with wrinkled, pubescent pulvinus; petiolar gland slenderly stipitate, tack-shaped to squatly drum shaped; rachis with a shallow adaxial groove interrupted at the pulvinules, pubescent with incurved trichomes and often with spreading trichomes. Leaflets 11-21 pairs, linear-oblong, bases asymmetric, proximally rounded to auriculate, distally acute to obtuse, margins entire, distinctly ciliolate to ciliate, apices rounded to truncate, mucronate, (3-) 7-16 (-18) x 1-2 (-2.6) mm; chartaceous; glabrous, or puberulent on lower surfaces only; midvein markedly excentric, lateral veins prominulous. Flowers solitary, supra-axillary, the peduncles fused to the axis for 4-17 mm; pedicels short, (0.5-) 3-7 mm; bracts and bracteoles squamate-lanceolate, persisting, 0.5-2 mm long. Sepals unequal, lanceolate-linear, 3.5-5 mm long; pubescent abaxially, corolla to 1.0 cm in diameter, yellow; stamens usually 10. Legume linear, slender, tan to dark brown, lighter colored over the seeds; (14-) 26-40 x 2.5-4 mm; puberulent with incurved trichomes; containing up to 12-17 seeds. Seeds rhombic-trapezoidal in shape, dull dark brown, lighter near the funiculus, glabrous, pitted, 1.5-2 mm.

GENERAL DISTRIBUTION: Isolated in the Bahama Islands, throughout the islands of the Caribbean, also northern coastal Venezuela, disjunct in Colombia.

DISTRIBUTION IN THE LESSER ANTILLES: St. Kitts!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent, Grenada.

COMMON NAMES: Balai-savane, acacia-balai, petit balai-savane, petite diotine.

Chamaecrista nictitans (L.) Moench ssp. **patellaria** (Colladon) Irwin & Barneby var. **glabrata** (J. Vogel) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 822. 1982.

Basionym: *Cassia patellaria* var. *glabrata* J. Vogel, Gen. Cass. Syn. 66. 1837. Habitat "in Pará, Brasiliae."

Type: Holotype, *Hb. Willd.* 8000/1, collected by Sieber and sent to Willdenow by Hoffmannsegg, (B).

Syn.: *Cassia aeschynomene* DC. ex Colladon, Hist. Nat. Méd. Casses 127, t. 17. 1816. Habitat "in Santo Domingo." (Type: labelled "Brotero, misit Balbis" (G-DC).)

Chamaecrista dussii Britton, Bull. Torrey Bot. Club **44**: 9. 1917. Habitat "Trou-Vaillant, Parnasse, Martinique." (Type: *Duss 1121* (holotype, NY).)

?*Cassia martinicensis* Urban, Repert. Spec. Nov. Regni Veg. **15**: 315. 1918. Habitat "in Martinique." (Type: *Duss 1121b*, presumably destroyed (B), no isotypes found.)

Herbaceous to suffrutescent, erect, rarely prostrate plants to 70 cm high; originally of low elevation savannas, now often weedy. Stems slender, striate, lignescent below, herbaceous distally, pubescent with incurved trichomes. Leaves ovate-oblong in outline; stipules lanceolate-linear, asymmetric basally, margins often ciliolate, persisting, 5-14 x 0.5-3 mm; pulvinus wrinkled, pubescent; petiole slender, with a squat, drum-shaped petiolar gland, having the diameter of the top equal to or exceeding the height. Rachis puberulent to glabrescent, with a shallow adaxial groove interrupted by the pulvinules; additional glands lacking. Mature leaves with 10-22 (-31) pairs of linear-oblong leaflets, the bases asymmetric, margins entire, ciliolate, apex obtuse to rounded, mucronate, (4-) 10.5-14 (-24) x (1-) 2.5-3 (-4) mm. Midveins excentric, lateral veins prominulous below, the blades puberulent to glabrescent, though often with some trichomes along the veins on lower blade surface. Inflorescences one to few flowered, above axils of distal leaves, peduncles fused to the axis for 5-17 mm, pedicels 5-9 (-12) mm long; bracts and bracteoles squamate to triangular, persisting, to 2 mm long. Sepals unequal, ovate-lanceolate, 5-7 mm long, sparsely pubescent; corolla yellow, to 1 cm in diameter; stamens 10. Legume slender, linear, prominently sutured, reddish to darker brown, then lighter above the seeds, (25-) 32-48 (-50) x 3-5 mm, pubescent with spreading, simple trichomes; containing up to 10-15 seeds. Seeds rhombic-trapezoidal, dull dark brown, pitted, 2 mm long.

GENERAL DISTRIBUTION: Greater Antilles, St. Thomas, Mexico, Central America, eastward across northern South America to the Amazon delta; disjunct in western South America. Naturalized in south Asia and Polynesia.

DISTRIBUTION IN THE LESSER ANTILLES: Guadeloupe!, Martinique.

Chamaecrista obcordata (Wikström) Britton, Bull. Torrey Bot. Club **44**: 6. 1917. Habitat "in insula Sti Bartholomaei."

Basionym: *Cassia obcordata* Sw. ex Wikström, Kongl. Svenska Vetenskapsakad. Handl. **1825**: 429. 1826.

Type: Holotype, Forsström s.n. (s); isotypes, 5 sheets (s, LE).

Erect suffrutescent shrubs to 1 m tall, of coastal sites on calcic substrates. Stems stiff, smooth to slightly striate, brown-gray, glabrous or puberulent with short, incurved trichomes. Leaves broadly ovate in outline, petiolate, with tiny, squamate, triangular, persisting stipules. Pulvinus wrinkled, puberulent; petiole slender, with one squat, drum-shaped to shortly stipitate gland; rachis with an adaxial groove interrupted by the pulvinules, pubescent with incurved trichomes to glabrescent, and often with a gland proximal to the base of each pair of leaflets. Leaves with 3-6 (-9) pairs of elliptic-oblong to obovate-obcordate leaflets; bases asymmetric, proximally obtuse, rounded to truncate, distally acute to cuneate; margins entire, apex asymmetrically rounded, truncate, emarginate to obcordate, mucronulate, (5-) 7-18 x (3-) 3.5-12 mm; glabrous, coriaceous.

Midvein centric, lateral veins prominulous on both surfaces. Flowers solitary from the upper leaf axils. Peduncles fused to the axis for 1-4 (-8) mm; pedicels slender, 8-19 (-25) mm long; bracts deciduous, not seen; sepals unequal, ovate-lanceolate, 5-7 (-10) mm long, glabrous; corolla yellow, to 2 cm in diameter; stamens 10. Legume slender, dark brown, (30-) 42-43 (-45) x 5-6 mm; glabrous to sparsely puberulent; with 7-9 seeds. Seeds rhomboid-trapezoidal, dull dark brown, glabrous, pitted, 3-4 (-4.3) mm long.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN THE LESSER ANTILLES: St. Barts!, St. Martin, Guadeloupe!, La Désirade!, Martinique!, St. Lucia!.

NOTES: This taxon is questionably distinct from the West Indian taxa *Ch. lineata* var. *lineata* and *Ch. glandulosa* var. *swartzii*. Several collections we have seen lack the glands at every segment of the rachis which Irwin & Barneby use to separate *Ch. obcordata* from *Ch. lineata*. In other respects these specimens are referable to the Lesser Antillean population known as *Ch. obcordata*, and we include them as such in this treatment, with the use of the rachis gland character modified.

CRUDIA Schreber

Crudia Schreber, Gen. Pl. 282. 1789, nom. cons.

Trees. Leaves pinnate; leaflets alternate or opposite. Inflorescence a raceme, axillary or terminal; bracts and bracteoles caducous or persistent. Flowers perfect, pedicellate, with hypanthium; calyx lobes 4, reflexed at anthesis; petals absent; stamens 8 to 10, apparently free (joined in basal tube adherent inside hypanthium); ovary densely pubescent, stipitate, stipe adherent to hypanthium; style filiform. Legumes leathery or woody, slightly swollen or strongly compressed, dehiscent; seeds 1 or 2.

TYPE SPECIES: *Apalatoa spicata* Aublet = *Crudia spicata* (Aublet) Willd., type cons.

A tropical genus of perhaps 50 species, much in need of revision. Most published accounts cover only a small part of the range and therefore include at most one to several species. A comprehensive study is necessary to clarify both species limits and nomenclature.

Crudia glaberrima (Steudel) J. F. Macbr., Contr. Gray Herb. 59: 20. 1919.

FIGURE 152.

Basionym: *Hirtella glaberrima* Steudel, Flora 26: 761. 1843.

Type: Surinam, Hostmann & Kappler 712.

Syn.: *Apalatoa glaberrima* (Steudel) Taubert, Bot. Centralbl. 47: 394. 1891.

Crudia obliqua Griseb., Fl. Brit. W. Indian Is. 216. 1860. (Type: Trinidad, Laguna de Orupouche, Purdie 72 (holotype, GOET; isotype, k, photo at A!).)

Tree to 20 m tall; growth noticeably discontinuous; prophylls cucullate, 1.2-1.5 mm long, puberulent, with buds in axils. Stipules caducous. Leaves 16.1-27.2

cm long, including petioles 0.2-2.1 cm long; leaflets 6 to 10, alternate, with petiolules 2-5 mm long; blades ovate, elliptic oblong, or obovate, 3.8-13.2 x 2-6 cm, coriaceous, glabrous, apex acuminate (rarely rounded), margin entire, base cuneate to truncate or rounded, generally symmetric. Racemes more or less cylindric, 7.6-21.5 x 1.6-2.1 cm; rachis sparsely puberulent; bracts ovate to lanceolate, 0.5-1.2 mm long, puberulent, caducous; bracteoles on pedicel just above base, ovate to lanceolate, 0.3-0.8 mm long, puberulent, caducous. Flowers generally crowded, rarely well separated, on puberulent pedicels 1.7-4.4 mm long; hypanthium 1.5-2.5 mm long, puberulent; calyx lobes obovate, 4.3-5.5 mm long, densely puberulent abaxially, more sparsely so adaxially, coronate at base, greenish white to cream-colored; filaments slender, ca. as long as style; anthers ovate, 1.1-1.2 mm long; ovary densely tawny-pubescent, style 6.9-11.7 mm long, stigma slightly flaring. Fruiting pedicels much thickened, 8-9 mm long; legumes asymmetric, more or less obovate, 6.4-8.6 x 4.6-5.5 cm, strongly flattened, densely velutinous.

GENERAL DISTRIBUTION: West Indies and northern South America.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!, Grenada!.

NOTES: All collections we have seen were made along river banks.

What we are calling *Crudia glaberrima* appears to be conspecific with *C. obliqua* Griseb., *C. antillana* Urban, *C. oblonga* sensu Griseb., and possibly even the Central American *C. acuminata* Benth.

Although some Lesser Antillean plants have been identified as *Crudia spicata*, the bracteoles of that species are as long as the pedicel. We have seen no verifiable specimens of *C. spicata* from the West Indies.

DELONIX Raf.

Delonix Raf., Fl. Tellur. 2: 92. 1837.

Trees. Leaves evenly bipinnate; leaflets small, numerous. Inflorescences corymbose racemes, axillary or terminal. Flowers large, showy; calyx with 5 equal lobes, valvate; petals 5, long-clawed, blade nearly orbicular; stamens 10, free; ovary sessile, style filiform or short, stigma truncate. Legume oblong, flattened, woody; seeds oblong, transverse.

TYPE SPECIES: *Poinciana regia* Bojer ex Hook. = *Delonix regia* (Bojer) Raf.

A genus of 3 to 8 species of Madagascar, eastern Africa and Asia.

Delonix regia (Bojer ex Hook.) Raf., Fl. Tellur. 2: 92. 1836. FIGURE 153.

Basionym: *Poinciana regia* Bojer ex Hook., Bot. Mag. pl. 2884. 1829.

Type: Madagascar.

Syn.: *Delonix regia* (Bojer ex Hook.) Raf. var. *genuina* Stehlé, Bull. Mus. Nat. Hist. (Paris) 2, 18: 186. 1946. Illegitimate name for typical variety.

Delonix regia (Bojer ex Hook.) Raf. var. *flavida* Stehlé, Bull. Mus. Nat. Hist. (Paris) 2, 18: 186. 1946. (Type: Martinique, Stehlé 4534 (US).)

Tree to 15 m tall; bark smooth; branches spreading, glabrous. Stipules slender,

1.6-2.5 mm long, puberulent, caducous. Leaves bipinnate, 22.5-50 cm long including petiole 3-11 cm long, golden-puberulent throughout; pinnae opposite, 16 to 50 per leaf, 4.5-15 cm long, decrescent both proximally and distally; leaflets opposite, 10 to 36 pairs per leaf, oblong to elliptic, 5.5-14 x 2.5 mm, apex and base acute to rounded, darker adaxially. Inflorescence a few-flowered raceme, 6-16.4 cm long, rachis puberulent; peduncle 1.4-7.3 cm long; bracts broadly ovate, 5-7 mm long, abruptly acute to acuminate. Flowers on puberulent pedicels 3.9-7.3 cm long; receptacular cup 3-12 mm long, clearly disarticulating from pedicel; calyx lobes elliptic to oblanceolate, 19-31 mm long, reflexed at anthesis, glabrous adaxially, sparsely puberulent abaxially, greenish yellow; petals 40-64 mm long, limb broadly ovate, glabrous, claw 19-33 mm long, puberulent, median adaxial petal somewhat larger, often a different color, whitish and streaked with red, or orange or yellow; filaments slender, 34-52 mm long, tomentose below, glabrate above, anthers 3-5 mm long; ovary tomentose, style filiform, 26-39 mm long. Legumes oblong, 32-60 x 4.3-5.2 cm, glabrous, ultimately dehiscent; seeds oblong-cylindric, 19-20 x 6 cm, yellowish and brown striate and mottled.

GENERAL DISTRIBUTION: Widely planted throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, Guadeloupe, Dominica!, Martinique, St. Vincent!, Barbados!.

COMMON NAMES: Flamboyant, flame tree, poinciana.

HAEMATOTOXYLON L.

Haematoxylon L., Sp. Pl. 1: 384. 1753.

Trees or shrubs, spiny or unarmed; branches glabrous. Stipules persistent or caducous. Leaves evenly pinnate or rarely bipinnate. Inflorescences axillary racemes. Flowers bracteate; calyx lobes 5, imbricate, unequal; petals 5, spreading, yellow; stamens 10, distinct; ovary short-stipitate, style slender. Legume compressed, papery, splitting through middle of valves; seeds 1 to 3, transverse, oblong, without endosperm.

TYPE SPECIES: *Haematoxylon campechianum* L.

A genus of 3 species, occurring in Mexico, Central America, northern South America, the West Indies and southwestern Africa.

Haematoxylon campechianum L., Sp. Pl. 1: 384. 1753.

FIGURE 160.

Type: LINN 538.1.

Shrub or small tree to 8 m tall; bark gray, rough; branches often wandlike, gray with numerous lenticels; spine-bearing or not, spines 6-17 mm long. Stipules subulate, 0.9-3.2 mm long, caducous. Leaves pinnately compound (rarely bipinnate), 2.5-10.6 x 1.7-4.3 cm, with petioles 3-15 mm long, like rachis sparsely puberulent; rachis with minute acute glands between leaflets; leaflets 6 or 8, with petiolules 0.3-1.2 mm long, blades obovate to obcordate, 0.8-3.3 x 0.6-2.4 cm, glabrous, glossy, base asymmetric, cuneate to rounded, apex rounded, trun-

cate or emarginate. Racemes cylindrical, 2.3-13.5 cm long, glabrous or sparsely glandular; bracts lanceolate, 0.5-1.8 mm long, acuminate, caducous. Flowers glabrous, with pedicels 2.3-4.9 mm long; hypanthium turbinate, 0.5-1.2 mm long; calyx lobes unequal, oblong, 2.5-4.2 mm long, reddish; petals oblanceolate, 3.5-5.6 x 1-3.2 mm, yellow; filaments ca. equal to petals, tomentose below, pale yellow; ovary glabrous, stigma only slightly expanded, cuplike. Legumes irregularly oblong to elliptic, 2-4.8 x 0.6-1.1 cm, glabrous, often acute at both ends; seeds oblong to ovate, 5.5-10 x 2.5-3.3 mm.

GENERAL DISTRIBUTION: Mexico, Central America, and West Indies.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Barbuda!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Campèche; logwood, campeachy wood, kampech, champish.

HYMENAEA L.

Hymenaea L., Sp. Pl. 2: 1192. 1753.

Large trees, resinous, unarmed. Stipules caducous. Leaves petiolate; leaflets 2, asymmetric, coriaceous, subsessile. Inflorescence a terminal corymbose panicle. Flowers large; calyx lobes 4, imbricate, narrowly campanulate; petals 5, sessile or clawed, white; stamens 10, free; ovary short-stipitate, stipe adnate



FIGURE 159 (left). *Hymenaea courbaril*, x 0.35. FIGURE 160 (right). *Haematoxylon campechianum*, x 0.35.

to calyx tube, style filiform, stigma small. Fruit woody, thick, indehiscent; seeds 1 to several, testa bony.

TYPE SPECIES: *Hymenaea courbaril* L.

A genus of 14 species, 13 in tropical South America and 1 in eastern tropical Africa. For more information-see Y. T. Lee and J. H. Langenheim, Univ. Calif. Publ. Bot. **69**: 1-109. 1975.

Hymenaea courbaril L., Sp. Pl. **2**: 1192. 1753.

FIGURE 159.

Lectotype: Brazil, Pluk., Phytographia **2**: 96, f. 2. 1691.

Tree to 30 m tall and 2 m dbh; bark smooth, grayish; branches tan, becoming gray, densely pale-puberulent, glabrescent with age. Stipules sheathing, ca. 1 cm long, densely puberulent, caducous. Leaves with petioles 7-14 (30) mm long, glabrous; blades 4.3-12.8 cm long; leaflets 2, subsessile, ovate to elliptic, 4.4-12.8 x 1.4-4.5 cm, coriaceous, strongly asymmetric, base cuneate to truncate, margin slightly revolute, apex acute to acuminate, dark gland dots visible abaxially in center of areoles. Inflorescences axillary, paniculate, 5.9-10.5 cm long, densely puberulent throughout. Pedicels short and stout; calyx tube (receptacle) distally expanded, 11-21 mm long, exuding resin; calyx lobes 5, oblong to ovate, 14-18 (22) x 7-11 (18) mm, velutinous-puberulent on both surfaces, caducous, apex rounded, somewhat hooded; petals 5, oblong to ovate, 1.3-2 x 0.6-0.9 cm, white, densely gland-dotted, apex acute; stamens 10, free, exserted; anthers ca. 6 mm long; style slender, exserted; stigma capitate; ovary glabrous, oblong, asymmetric. Fruit an indehiscent legume, oblong, 7.5-10.3 x 3.9-5 cm, somewhat compressed in cross-section, woody, thick-walled; seeds 1 to 8.

GENERAL DISTRIBUTION: Mexico, Central America, West Indies (except Bahamas), South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Les Saintes!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Courbaril, locust tree, stinking tree, cue cue bawey, koubawi, koubawawi.

PARKINSONIA L.

Parkinsonia L., Sp. Pl. **1**: 375. 1753.

Shrubs or small trees. Leaves bipinnate, subsessile; rachis spinose; pinnae 1 or 2 pairs; leaflets minute. Inflorescences axillary racemes. Calyx lobes 5, subequal; petals 5, spreading; stamens 10, filaments villous below; ovary short-stipitate, style filiform. Legumes flattened, torulose, somewhat papery.

TYPE SPECIES: *Parkinsonia aculeata* L.

A tropical genus of only 2 species in southern Africa and tropical regions of the Americas.

Parkinsonia aculeata L., Sp. Pl. 1: 375. 1753.

FIGURE 162, on page 436.

Type: Not designated.

Shrub or small tree to 9 m tall; bark fissured, forming small plates; branches spreading, drooping; young stems and leaves glabrous to puberulent. Stipules spinose, 0.7-4 mm long, caducous and easily broken. Leaves with spinose rachis 3-15 mm long; pinnae 15.1-38 cm long, with flattened winged rachis; leaflets alternate, numerous, ca. 30 to 60 pairs, with petiolules 0.3-0.5 mm long, blades oblong to oblanceolate, 2-4.7 (7.6) x 0.8-1.8 (2.9) mm, base cuneate, apex rounded or truncate. Racemes 9.5-24 cm long, with rachis and pedicels glabrous or sparsely puberulent; bracts lance-acuminate, 1.2-1.7 mm long, caducous. Flowers with pedicels 9-15 mm long, elongating slightly in fruit; hypanthium abruptly spreading, 2-3.3 mm long, persistent in fruit; calyx lobes oblong, 4-6 mm long, becoming reflexed and caducous, glabrous, yellow and orange, blade obovate; ovary strigose. Legumes 3.9-14 x 0.5-0.8 cm, with sparse trichomes; seeds 1 to several, ellipsoid, 8-9 x 4 mm, gray-striate.

GENERAL DISTRIBUTION: Florida to Texas, Mexico, Central America, West Indies, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Barbuda!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Jerusalem thorn, holy thorn, royal cashiaw; bois-caca-rat, acacia savane, arrête-nègre, arrête-boeuf.

SENNA Miller

Senna [K. Bauhin] Miller, Gard. Dict., abr. ed. 4. 1754.

Trees, shrubs, lianas, or herbs; pubescent or not. Petiole and rachis ventrally grooved. Petiolar gland present in most species. Leaflets 2 or more pairs. Inflorescences solitary or paniculate racemes. Pedicels ebracteolate. Flowers zygomorphic or wholly irregular; perianth parts strongly graduated to subequal. Petals (of Lesser Antillean species) yellow, clawed. Stamens 10, the 3 adaxial mostly staminodial, accrescent abaxially; if 3 much longer, then the 2 lateral ones antepetalous with central antesepalous; anthers basifixed, terminally dehiscent. Legume dehiscent or inertly dehiscent. Seeds mostly areolate, funicle filiform.

TYPE SPECIES: *Senna alexandrina* Miller, 1768.

Our treatment of the genus *Senna* follows that of Irwin & Barneby, Mem. New York Bot. Garden **35**: 1982. Of the \pm 260 species, about 80% are American. Descriptions have been written from specimens at the Harvard University Herbaria and amplified with information from Irwin & Barneby.

KEY TO THE SPECIES

1. Petiole and rachis eglandular; anthers never tubular beaked nor with broad linguiform appendage.
2. Stipules persistent; leaves mostly less than 11 cm long (although occasionally as much as 28 cm), leaflets 2-7 pairs; fruit compressed, woody or papery, but never terete or winged.
3. Pedicels 14-25 mm; leaflets ovate to obovate, the longest 2.7-6 (13) cm long; corolla irregular; anthers \pm isomorphic; legume straight, compressed, > 15 cm long; small tree *S. aiomaria*
3. True pedicels 1-2 mm, hypanthium an additional 2.5-3.5 mm; leaflets consistently obovate, not more than 2.8 cm long; corolla zygomorphic; 2 abaxial stamens much longer than the rest; legume lunately curved, papery, < 6 cm long; herb *S. italica*
2. Stipules early caducous (sometimes persistent in *S. alata*); leaves mostly > 15 cm long; leaflets 4-16 pairs; fruit compressed, terete, or winged.
4. Leaflet apex acute to acuminate; anthers nearly isomorphic, but the 2 abaxial with a short erect beak; corolla strongly irregular; pod woody, terete (FIGURE 158e) *S. spectabilis*
4. Leaflet apex obtuse to truncate or emarginate, although sometimes mucronate; 2 abaxial stamens much the longest; corolla zygomorphic; pod compressed or winged.
5. Inflorescence a panicle of stout corymbiform racemes with early-caducous linear bracts; fruit compressed, woody; leaflets decrescent both proximally and distally, the longest < 8 cm; anthers opening by a U-shaped aperture; cultivated tree *S. siamea*
5. Inflorescence a spikelike raceme with sepeloid bracts, persistent until anthesis; fruit tetragonal, prominently winged; leaflets decrescent only proximally, the longest > 8 cm; anthers opening by 2 pores *S. alata*
1. Gland present on petiole or rachis; anthers sometimes either tubular beaked or with a broad linguiform appendage.
6. Leaflets exactly 2 pairs, the base asymmetric; corolla zygomorphic; anthers beaked but neither tubular nor with a linguiform appendage; legume pulpy, turgid, subterete (FIGURE 158f).
7. Gland between proximal pair of leaflets only; filaments of 4 median anthers distally bulbous; native shrub *S. bacillaris*
7. Glands between both pairs of leaflets; filaments of median stamens not bulbous; cultivated tree or native liana or weak shrub.
8. Petiolar glands both adaxial; fertile stamens > 4; native liana or weak shrub.
9. Leaflets often dark red- to blackish-lustrous above, pale green below; floral bracts 3-5 mm, \pm cucullate; fertile stamens 5-6, anthers distally puberulent; legume 15-18 cm; plants of northern Lesser Antilles *S. nitida*
9. Leaflets darker above and lustrous, but never red or black; floral bracts 8-15 mm; fertile stamens 7, anthers generally glabrous; legume (8) 19-23.5 cm long; plants of southern Lesser Antilles *S. undulata*
8. Proximal gland adaxial, distal gland abaxial; fertile stamens 4; cultivated tree *S. hayesiana*
6. Leaflets of some or all leaves more than 2 pairs, the base symmetric or not; corolla zygomorphic or irregular; anthers sometimes either tubular beaked, with a linguiform appendage, or truncate; legume generally \pm compressed.

10. Petiolar gland on petiole proper, below first pair of leaflets, on or distal to the pulvinus; most species coarsely herbaceous or fruticose, in which case the long abaxial anthers protracted behind the pores to form a linguiform appendage.
 11. Leaflets > 15 pairs, strongly bicolored; corolla irregular; abaxial anthers with a prolonged tubular beak; legume corrugated over seeds; cultivated tree *S. multijuga*
 11. Leaflets < 11 pairs, only slightly bicolored if at all; corolla zygomorphic; abaxial anthers protracted into a linguiform appendage; if legume corrugated-ridged then ridges not over seeds; coarse malodorous herbs (FIGURE 158d).
 12. Gland acuminate to acute; staminodes orbicular (see also lead 23) *S. ligustrina*
 12. Gland obtuse and often \pm hemispheric; staminodes paddle-shaped or ovate.
 13. Plants densely hirsute with spreading, tawny to white hairs; young stems fistulose; staminodes oblong to ovate *S. hirsuta*
 13. Plants glabrous except for young inflorescence- and leaf-axes which are pubescent with short stout curved trichomes; young stems pithy; staminodes paddle-shaped.
 14. Peduncles short, 2-7 mm; style not notably dilated, only slightly incurved *S. occidentalis*
 14. Peduncles long, 6-20 mm; style dilated at tip, recurved through 180 degrees *S. sophora*
 10. Petiolar gland(s) between or distal to pulvinules, not strictly on the petiole (gland sometimes appearing truly petiolar on some leaves of *S. pallida* because of premature loss of the first pair of leaflets); anthers never forming a linguiform appendage; herbs, shrubs, or trees.
 15. Glands more than 1, between more than 1 pair of leaflets; shrubs, herbs or cultivated trees.
 16. Fertile stamens 10, each theca opening by a terminal lateral slit (FIGURE 158c); legume planocompressed and > 1 cm broad; cultivated trees.
 17. Leaflets 4-7 pairs, the largest 4-8.5 cm; longest interfoliolar rachis segments 13-33 mm; legume 10-17.5 cm; sutures thickened *S. sulfurea*
 17. Leaflets 6-10 pairs, the largest 2-5 cm; longest interfoliolar rachis segments 9-17 mm; legume 7-10 cm; sutures scarcely thickened *S. surattensis*
 16. Fertile stamens 7; anthers either prominently beaked or opening by a single pore, or both; legume quadrangular, subterete, or if compressed then < 0.5 cm wide; herbs to moderate-sized shrubs, weedy or cultivated.
 18. Glands clavate or ovoid, generally obtuse; leaflets acute to acuminate (3.5) 5.7-8 (10.5) cm long; racemes > 2-flowered; petals 12-16 mm.
 19. Plant glabrous except for pulvinules *S. septemtrionalis*
 19. Plant pilosulous on young leaflets, pedicels, and base of ovary *S. x floribunda*
 18. Glands ovate lanceolate, or lance-attenuate, acute to acuminate; leaflets at most acute and mucronulate, often rounded or obtuse,

- never acuminate, mostly > 6 cm; petals either > 16 or < 12 mm; racemes 1-2-flowered or if more, then only 1 flower open at a time.
20. Corolla irregular, 1 abaxial petal obliquely dilated; longest petal 15-29 mm long; 3 abaxial anthers with an attenuate terminal tubular beak (FIGURE 158b); legume compressed, valves forming an X-shaped mound over the seeds; shrubs (see also lead 25) *S. pallida*
 20. Corolla zygomorphic; longest petal < 15 mm; 3 abaxial anthers, if beaked, not attenuate and tubular; legume terete or if somewhat compressed then the valves without X-shaped mounds over the seeds; monocarpic herbs.
 21. Plant tawny hirsute throughout at maturity; leaflets 3-5 pairs; petals 3.5-8 mm; anthers not beaked, similar but accrescent abaxially (FIGURE 158a); legume hirsute, grooved between seeds *S. uniflora*
 21. Plants pubescent only when young, trichomes becoming sparse with age; leaflets only 3 pairs; petals 8-15 mm; anthers contracted apically to form a short neck, dilated above, the abaxial much the longest; legume glabrous, nearly terete, not grooved between seeds (see also lead 26) *S. obtusifolia*
 15. Gland 1 between proximal pair of leaflets; shrubs or herbs.
 22. Leaflets < 1 cm long; petals not notably heteromorphic; legume elevated over the seeds in a transverse mound; anthers terminating in an attenuate tubular beak *S. polyphylla*
 22. Leaflets mostly much > 1 cm; corolla irregular or zygomorphic, one petal usually distinctly different in shape; legumes various but not transversely elevated over the seeds; anthers tubular beaked or not.
 23. Leaflets ovate to elliptic or lanceolate, broadest at or below the middle.
 24. Fertile stamens 6, the central abaxial anther shriveled, the apex of the lateral abaxial anthers extended to form a broad linguiform appendage; legume compressed, 9.5-14 cm; weedy herb (see also lead 12) *S. ligustrina*
 24. Fertile stamens 7, anthers with a short thick beak; legume becoming subterete at maturity, 5-7 cm; cultivated shrub ...
..... *S. x floribunda*
 23. Leaflets mostly obovate to oblanceolate, broadest above the middle.
 25. Leaflets 4-8 (11) pairs; pedicel subtended by a gland; corolla irregular; anthers attenuate to a terminal tubular beak (FIGURE 158b); legume compressed, valves papery, forming an X-shaped mound over the seeds (see also lead 20)
..... *S. pallida*
 25. Leaflets 3 (2-4) pairs; pedicel not subtended by a gland; corolla zygomorphic; anthers not tubular-beaked; legume turgid, nearly terete when fresh.
 26. Shrub; raceme > 2-flowered; pedicels < 5 mm; fertile stamens 6, central abaxial anther empty; staminodes Y-shaped; legume > 9 mm thick *S. bicapsularis*
 26. Herb; raceme 1- to 2-flowered; pedicels > 7 mm; fertile

stamens 7; staminodes linear or only slightly bifurcate;
 legume < 6 mm thick (see also lead 21)
 *S. obtusifolia*

***Senna alata* (L.) Roxb., Fl. Ind. 2: 349. 1824.**

Basionym: *Cassia alata* L., Sp. Pl. 1: 378. 1753.

Lectotype: Hb. Cliff. 158.C3 (BM).

Syn.: *Herpetica alata* (L.) Raf., Sylva Tellur. 123. 1838.

Trees or large shrubs 1-4 m; bark smooth, dark brown. Young twigs and inflorescences covered with fine pubescence; leaflets pubescent at least on dorsal veins. Stipules lance-ovate to deltate-triangular, asymmetrical at the base, 6-20 mm, the lower side extended to form an auricle. Leaves (13) 22-37 (75) cm long, the pulvinus dark and shrunken when dry; petiole short, mostly less than 3.5 cm, eglandular. Leaflets 5-11 (14) pairs, oblong to obovate, accrescent distally, the largest 8-17 (21) x 3-9 (13.5) cm, the apices obtuse or semicordate. Racemes axillary, narrow and dense, the flowers subtended by large sepaloid yellow to orange bracts with pallid margins, 2.2-2.5 (3) cm, these deciduous before anthesis, a dense spikelike cone thus extending above the open flowers at early anthesis. Pedicels (4) 7-10 (11) mm. Sepals petaloid, obovate, deep yellow, 10-12 mm, early caducous. Corolla zygomorphic, concave at anthesis; petals drying pale with prominent dark veins, obovate, the longest (standard) 14-22 (24) mm, margins crenate. Fertile stamens 7; anthers opening by apical pores, those of the 4 median stamens and the central abaxial one with a beak projecting at right angles; the 2 long abaxial anthers about twice as long as the others, their bases sagittate, apices truncate, incurved, "facing each other like the arms of ice-tongs." Ovary short stipitate, densely puberulent; style filiform, incurved. Legume tetragonal, many septate, prominently winged down the middle of each valve, (11) 13-17 (19) x 2-3.2 mm (including the wings), dehiscent. Seeds parallel with the septa, rhombic, \pm 6 mm long, brown with darker areoles on the narrow faces.

GENERAL DISTRIBUTION: West Indies, Mexico south to northern Colombia, east to Guianas, Brazil, Ecuador, Paraguay, northern Argentina; cultivated in United States and Old World Tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Taratana, talentro, ringworm shrub, darterier, herbe à darters, casse puante, casse allée, cassia alata, Christmas candle, kasialata.

***Senna atomaria* (L.) Irwin & Barneby, Mem. New York Bot. Gard. 35: 588. 1982.**

Basionym: *Cassia atomaria* L., Mant. Pl. 68. 1767. — "Habitat in America. Dr. Jacquin."

Holotype: LINN 528.17 [Jamaica].

Syn.: *Cassia arborescens* Miller, Gard. Dict. ed. 8, *Cassia* no. 15. 1768. — "*Senna spuria tetraphylla arboorea, siliquis compressis, angustis, longissimis, pendulis*"

- Houst[on] MSS ... sent me from La Vera Cruz, in New Spain, by the late Dr. Houston." — Type, BM = BH Neg. 5170 = NY Neg. 169.
- Cassia triflora* Vahl, Eclog. Amer. 3: 11. 1807. — "Habitat in insula St. Crucis. von Rohr."
- Cassia planisiliqua* sensu Lam., Encycl. 1: 645. 1785. — "On trouve cette espèce dans l'île de Guadeloupe." Not *C. planisiliqua* L., 1753, which = *Senna occidentalis*.
- Cassia emarginata* sensu Little, Woodbury & Wadsworth, Trees Puerto Rico, 2: 274, fig. 370. 1974. Not *C. emarginata* L., which = *S. bicapsularis* (L.) Roxb.

Small drought-deciduous tree, up to 6 (20) m; bark smooth, red-brown to gray, lenticellate. Pubescence thick on all young parts, tawny to more often intense fluorescent yellow, becoming lighter and somewhat less velutinous with age. Stipules subulate, ca. 3 mm, \pm persistent. Leaves 5-11 (28) cm long, eglandular. Leaflets 2-4 (5) pairs, ovate to obovate, accrescent distally, the longest 2.7-6 (13) x 1.4-3.1 (6) cm, about twice as long as broad, bicolored, the abaxial surface lighter colored and more highly pubescent; the base cuneate to occasionally rounded, apex obtuse to acute, mucronulate, margin revolute. Racemes developing from either short shoots or axils of foliage leaves on thin flexuous peduncles; flowers generally developing before or simultaneous with leaf expansion; bracts lance-acuminate, caducous well before anthesis. Pedicels thin, flexuous, 14-25 (28) mm. Sepals ovate to obovate, very unequal, the largest 4-8 mm long, becoming reflexed. Petals strongly anisomorphic, the fifth petal arched over and enclosing the stamens, much the longest, 10-17 (23) mm. Fertile stamens 7; anthers more or less isomorphic, oblong, dehiscing by parallel slits at the end of a latero-infraterminal beak. Ovary glabrous, often becoming densely pubescent after fertilization, short stipitate, the stipe 2-4 mm. Legume straight, compressed, 15-21 (37) x 0.7-0.9 (1.4) cm, glabrous, dark brown or black at maturity; the sutures thickened, cordlike. Seeds obovoid, red-brown, smooth, with elliptic areole.

GENERAL DISTRIBUTION: Mexico and Central America to northern Colombia, Venezuela, West Indies and the Bahamas.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Antigua!, Guadeloupe, Marie Galante!, Martinique!, St. Vincent!, Barbados!.

COMMON NAMES: Casse-savane, casse-hallier, sou-marqué, canéfice.

Senna bacillaris (L. f.) Irwin & Barneby var. ***bacillaris***, Mem. New York Bot. Garden 35: 113. 1982.

- Basionym: *Cassia bacillaris* L. f., Suppl. Pl. 231. 1782. — "Habitat in Surinamo. C. G. Dalberg."

Lectotype: LINN 528.2.

- Syn.: *Mimosa nodosa* L., Sp. Pl. 1: 516 ("uodosa"). 1753. — "Habitat in Zeylona." Lectotype, *Phaseolus arboreus tetraphyllus Zeylanicus* Pluk., Phytographia 3 (= Opera omnia bot. 2): t. 211, fig. 5. 1692.

Chamaefistula bacillaris (L. f.) Don, Gen. Hist. 2: 451. 1832.

Shrub up to 3 (8) m, sometimes producing runners; bark smooth, gray. Young

twigs, leaves and inflorescences covered with fine dense pubescence. Stipules narrowly linear to falcate, caducous. Leaves 12-30 cm long; petioles 2-4 (6.7) cm, with a light-colored, wrinkled pulvinus; petiolar gland oblong-conic, obtuse, dark red-brown, sessile, between the proximal pair of leaflets. Leaflets exactly 2 pairs, ovate, strongly asymmetrical, the midrib dividing the leaflet ca. 1:2, the distal pair much the larger, 7.5-13 (19) x 3.2-8.5 (9.5) cm, darker above than below; base semicordate, apex acute to retuse. Panicles corymbiform, terminating branchlets, primary axis becoming strongly zigzag at full anthesis; bracts ovate, caducous. Pedicels 2-3.7 (5.5) cm. Sepals green, yellow, or red-flecked, unequal obovate to oblanceolate, the longest 7-10 (12.5) mm. Corolla zygomorphic; petals obovate to flabellate, the longest 15-27 (32) mm, the 3 adaxial longer and broader than the 2 abaxial, puberulent. Fertile stamens 7; filaments of the 4 median anthers distally bulbous; the 3 abaxial anthers only slightly longer than the 4 median ones, abaxial anthers with the pollen sacs confluent at the apex to form an introrse uniporate beak, the median anthers opening by 2 extrorse laterally directed pores. Ovary strigose, the style recurved. Legume turgid, subterete, 13-19 (36) x 0.7-1.5 cm, glabrous, dehiscent; the sutures broad, the mature valves stramineous, opening widely to expose the seeds. Seeds biseriata, embedded in pulp, 3.2-5.6 mm long.

NOTES: Although the name *Cassia fruticosa* L. has been applied to many West Indian specimens of the taxon, Irwin & Barneby maintain that *C.* (now *Senna*) *fruticosa* and *S. bacillaris* are distinct, the former having more consistently revolute leaflets, smaller flowers, fewer ovules, and smoother glossy pods than the latter. As thus defined, *S. fruticosa* is restricted to Mexico and northern Central America.

It is not clear to us at this time why Irwin and Barneby did not make a new combination in *Senna* for *Mimosa nodosa* L. In their treatment (p. 113) they note only that *Mimosa nodosa* L. is not *Cassia nodosa* Buch.-Hamilt. ex Roxb.

GENERAL DISTRIBUTION: South from Nicaragua across northern South America north to the Windward Islands. Cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAME: Christmas blossom, Christmas bush.

***Senna bicapsularis* (L.) Roxb. var. *bicapsularis*, Fl. Ind. ed. 2, 2: 342. 1832. FIGURE 157.**

Basionym: *Cassia bicapsularis* L., Sp. Pl. 1: 376. 1753. — "Habitat in India."

Lectotype: LINN 523.10.

- Syn.: *Cassia emarginata* L., Sp. Pl. 1: 376. 1753. — "Habitat in Caribaeis." — Lectotype the protologue of *C. minor fruticosa hexaphylla sennae foliis* Sloane, Voy. Jamaica 2: 44, t. 180, fig. 1,2,3,4. 1725. — Typotype, *Sloane Herb.* vol. 6, fol. 28 (BM).

Isandrina emarginata (L.) Britton & Rose ex Britton & Wilson, Bot. Porto Rico 5: 374. 1924 as to name.

Cassia berterii Colla, Hortus Ripul. 30, t. 24. 1824. — "E seminibus a Bertero e Guadalupa missus an: 1817 enata . . . laete floruit Majo 1823." — No type at G.

Adipera bicapsularis (L.) Britton & Rose ex Britton & Wilson, Bot. Porto Rico 5: 370. 1924.

Spreading shrub up to 3.5 m high; bark lenticellate, red-brown to gray, glabrous throughout or with some scattered long hairs on very young growth. Stipules lanceolate to subulate, caducous. Leaves somewhat succulent, 2.6-7 (9) cm; glandular colleters in axils; pulvinus sensitive. Petiolar gland ovate or clavate, obtuse, greenish, stipitate or nearly sessile, situated between the first pair of leaflets. Leaflets mostly 3 (2-4) pairs, obovate to oblanceolate, accrescent distally, the largest 1.6-4.5 x (0.6) 1.1-2.3 cm, imbricate in sleep; base asymmetric, rounded to cuneate, apex truncate to occasionally retuse, sometimes mucronulate. Raceme terminating lateral branches, few-flowered; bracts lance-acuminate, caducous. Pedicels 1-2 (5) mm, surrounded at base by gold-brown shining glandular hairs, clearly articulate with the 1-2 (3) mm obconic hypanthium. Sepals obovate to oblanceolate, green with pale margins, ciliate, the abaxial one the longest, (7) 8-12 mm. Corolla zygomorphic; petals cuneate at base, oblanceolate, the longest (10) 12-16 mm. Fertile stamens 6; anthers of the 2 long abaxial stamens attenuate to a short truncate beak, the thecae confluent to form a single apical pore; the central abaxial stamen shorter, sterile, but the anther otherwise similar in form to those of the 4 still-shorter median anthers, these sagittate at the base, the thecae confluent above to form a U-shaped pore terminating a short obliquely truncate beak. Staminodes Y-shaped, winged between the branches of the Y. Ovary glabrous, the style recurved. Legume turgid, nearly terete except where constricted by abortion of ovules, 8-18.5 x 0.9-2 cm, stipitate, the stipe 3-6 mm; the sutures not thickened, mature valves pale brown, papery dehiscent. Seeds biseriate, horizontal, embedded in pulp, 4-6 mm long, smooth, dark brown, lustrous, exareolate.

GENERAL DISTRIBUTION: Perhaps native in south and eastern Caribbean, adventive elsewhere in coastal areas throughout the New and Old World Tropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Antigua!, Barbuda!, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Les Saintes, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Black dog bush, money bush, sou marqué (soumaké), canéfice bâlard, caca-bétyé, caca-soldat, case-hallier.

Senna × floribunda (Cav.) Irwin & Barneby, Mem. New York Bot. Garden 35: 360. 1982.

Basionym: *Cassia floribunda* Cav., Descr. Pl. 132. 1801. — "Crece en la Nueva-España junto a la Puebla de los Angeles: . . . se cultiva en el Jardín botánico."

Type: None found at MA, but plants at G-DC thought to be authentic.

Syn.: *Cassia herbertiana* Lindley in Edwards, Bot. Reg. 17: t. 1422. 1831. — "A native of Barbadoes, whence seeds were received by the Hon. and Rev. William Herbert by whom our specimens were communicated . . ." — Lectotype the cited plate.

Adipera arsenei Britton & Rose, N. Amer. Flora 23(4): 242. 1930. — "Fort Guad-

alupe, Puebla, 2,180 meters altitude, September 30, 1906, *Brother G. Arsène* (US).

Cultivated shrub up to 3 m high; bark gray-brown. Leaflets, pedicels and base of ovary pilosulous when young, later glabrous. Stipules erect, lanceolate. Leaves 7-11 (18) cm, pulvinus broad; gland between proximal pair of leaflets or between several pairs, stipitate, fusiform to lance-acuminate. Leaflets 3-5 pairs, ovate, oblong-elliptic or lanceolate, the longest 3-7 x 1-2 cm, bases nearly equilateral, cuneate to rounded, glabrous, acute to acuminate. Racemes axillary, flowering before full expansion of the subtending leaf; bracts linear-acuminate, early caducous. Pedicels slender, 14-20 (25) mm. Sepals ovate to obovate, strongly graduated, the longest (6) 9-11 mm. Corolla zygomorphic; petals drying pale, darker veined, obovate, oblong or obcordate, the longest 14-17 mm. Fertile stamens 7, the 4 median with shorter filaments; anthers similar, opening by 2 pores terminating an oblique short thick beak. Ovary, style, and stigma glabrous to sparsely pubescent. Legume subterete, 5-7 x 0.7-0.9 cm, dehiscent, stipitate, the stipe 4-5 mm; valves nigrescent, sutures not pronounced. Seeds plumply ovoid, 3.5 mm, testa minutely pitted, dull chestnut brown, exareolate.

Irwin & Barneby believe this to be a naturally occurring, fully fertile hybrid between *S. septemtrionalis* (Viv.) Irwin & Barneby and *S. multiglandulosa* (Jacquin) Irwin & Barneby.

GENERAL DISTRIBUTION: Mexico, cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Barbados.

Senna hayesiana (Britton & Rose) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 133. 1982.

Basionym: *Chamaefistula hayesiana* Britton & Rose, N. Amer. Flora **23**(4): 235. 1930. Type: "Gatun, Panama, October 1859, S[utton] Hayes 572" (NY).

Cultivated shrub up to 7 m; bark brown to gray, smooth. Plants more or less puberulent throughout with short spreading or appressed hairs. Stipules firm, linear attenuate, strongly nerved, erect or falcately incurved, caducous. Leaves (6) 9-14 (25) cm; petiolar glands 2, firm, glabrous, sessile or short stipitate, conical or lanceolate-obtuse, the first inserted ventrally between the proximal pair of leaflets, the second inserted dorsally between the distal pair of leaflets. Leaflets exactly 2 pairs, ovate to obovate-elliptic, the distal pair much the larger, 5.5-16 x 2.5-8.5 cm, sparsely puberulent, glaucescent below; bases inequilateral, semirounded, apex acuminate. Racemes axillary, single or aggregated into few-branched panicles; bracts lanceolate, cordate-based, caducous. Pedicels flexuous, 18-46 mm. Sepals oblong to ovate, the longest 4-7 mm, acute or rounded. Corolla zygomorphic; petals subisomorphic, obovate to oblanceolate, 11-22 mm. Fertile stamens 4, the 3 abaxial and 3 adaxial ones staminodial; median anthers firm, 2-porose from a short beak. Ovary strigose, style and stigma short, thick, glabrous. Legume stipitate, the stipe 2-6 mm, body subterete, 10-24 x 0.8-1.3 cm, dehiscent; valves green to brown. Seeds biseriate, embedded in black pulp, ca. 4.5 mm, testa brown, lustrous, crackled, exareolate.

Description based on one HUH specimen from Costa Rica and on Irwin & Barneby.

GENERAL DISTRIBUTION: Southeastern Mexico through Central America, northern Colombia, and Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Martinique.

Senna hirsuta (L.) Irwin & Barneby var. **hirsuta**, *Phytologia* **44**(7): 499. 1979.

Basionym: *Cassia hirsuta* L., Sp. Pl. **1**: 378. 1753. — "Habitat in America."

Lectotype: Herb. Cliff., 159.4 (BM).

Syn.: *Ditremexa hirsuta* (L.) Britton & Rose in Britton & Wilson, Bot. Porto Rico **5**: 372. 1924.

Coarse herb up to 2 (2.4) m tall; young stems fistulose. The entire plant covered with long dense silky, tawny to white hairs. Stipules linear-subulate, erect or incurved, caducous. Leaves 8-13 (33) cm. Petiolar gland short stipitate to sessile, obtuse, appearing just above the pulvinus, the latter shrunken when dry. Leaflets (3) 4-5 pairs, elliptic, ovate or lance-ovate, the largest (4.5) 6-9.5 (10.5) x 2.1-3.6 cm, the proximal pair much the smallest; base mostly cuneate, apex acute to acuminate. Racemes few-flowered, axillary; the bracts linear and early caducous. Pedicels (9) 14-19 (25) mm. Sepals ovate to obovate, 5-8 (10) mm long, hirsute. Corolla zygomorphic; petals mostly oblanceolate but the standard sometimes flabellate, the longest 11-15 mm, glabrous. Fertile stamens 6; 4 median anthers and sterile central abaxial one contracted to a single oblique terminal pore; the 2 long abaxial anthers prolonged behind the 2 terminal pores to form a linguiform appendage; staminodes 3, oblong to ovate. Ovary hirsute, the stigma expanded and recurved. Legume erect or falcately recurved, 11-13 (15) x 0.3-0.7 cm, hirsute; sutures thickened. Seeds transverse, obovoid, short cylindrical, ca. 2-3 mm long, testa smooth, the areole ovate, lighter brown than the rest of the testa.

GENERAL DISTRIBUTION: Lowland Neotropics, from Panama across Venezuela and Guianas to northern Brazil, north through Trinidad and Lesser Antilles to Jamaica. Naturalized in Bolivia and parts of Old World Tropics.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Sou marqué poilu, herbe puante (zépiante), zépiante bata, kafé zépyant, café herb pua.

Senna italica Miller, Gard. Dict. ed. 8, *Senna* no. 2. 1768. — "...*Senna italica sive foliis obtusis* C[aspar] B[auhin] P[inax 397. 1623] ... grows naturally in India."

Type: None found at BM.

Syn.: *Cassia ligustrina* Miller, Gard. Dict. ed. 8, *Cassia* no. 12. 1768. — "...sent me from the Havannah by the late Dr. Houston." — Specimen labelled 'Havanna' in hb. Miller (BM) may be authentic. — Not *C. ligustrina* L.

Cassia italica (Miller) Sprengel, "Bot. Gart. Univ. Halle 21. 1800" fide Mabberley, *Taxon* **30**(1): 9. 1981.

Cassia obovata Colladon, Hist. Nat. Méd. Casses 92, t. 15, fig. A. 1816, illegitimate name.

Senna obovata (Colladon) Link, Handbuch **2**: 140. 1829; Batka, Bot. Zeitung (Berlin) **7**: 192, t. 2, fig. 3. 1849.

Weedy diffuse herb of shores and open areas, 0.5-1.2 m; young stems green to brown, somewhat angled. Appearing glabrous, but most parts in fact covered with minute white appressed puberulence. Stipules lance-acuminate, auriculate, 3.5-5 mm, strongly veined, soon reflexed, persistent. Leaves 5.5-10.5 cm; petiole 16-27 mm, the sulcus interrupted at the pulvinules, eglandular. Leaflets 3-7 pairs, obovate to oblong-obovate, accrescent and relatively much wider distally, the largest (1.5) 2-2.8 x (0.8) 1.2-2.1 cm, minutely puberulent on one or both sides; the base strongly asymmetric, semicordate, apex rounded to truncate, mucronulate. Racemes elongate, terminal, spikelike, the fruits finally widely spaced; bracts ovate to orbicular, 2-4 mm, extended to an abrupt acute or acuminate tip, very early caducous. Pedicels 1-2 mm, hypanthium 2.5-3.5 mm, ascending in flower, becoming reflexed in fruit. Sepals oblong to elliptic, the longest 7-10 mm, strongly parallel veined, becoming reflexed by anthesis. Corolla irregular and pistil laterally displaced; petals drying off-white with brown veins, subequal, oblanceolate to oblong-elliptic, the longest 10-11 (12.5) mm. Fertile stamens 7, the two longest elevated and incurved so that they face each other "like the arms of ice-tongs"; anthers all sagittate at base, those of 4 median stamens and central abaxial stamen introrsely dehiscent from a short biporate beak, anthers of 2 long abaxial stamens ca. twice as long as the others, also shortly beaked. Ovary densely puberulent, curved, style glabrous, recurved, persistent in fruit, stigma dilated. Legume lunate, flat, (2.5) 2.9-5.8 x 1.1-1.5 cm, the valves gray papery, puckered into a discontinuous longitudinal crest over each seed. Seeds ampulliform, ca. 3 mm long, lustrous, rugulose, the areole elongate.

GENERAL DISTRIBUTION: Native to Africa and Near East; adventive in Antilles and Venezuelan coast.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Martin!, St. Eustatius, St. Vincent.

Senna ligustrina (L.) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 409. 1982.

Basionym: *Cassia ligustrina* L., Sp. Pl. **1**: 378. 1753. — "Habitat in Virginia, Bahama." Lectotype: Herb. Cliff., *Cassia* No. 7 *ex parte* (BM), one of four sheets filed under *Senna occidentalis* *odore opii virosi Orobi pannonici foliis mucronatis glabris*.

Syn.: *Cassia bahamensis* Miller, Gard. Dict. ed. 8, *Cassia* no. 9. 1798. — "...grows naturally in the Bahama Islands, from whence I received the seeds." Type: "*Cassia Bahamensis pinnis foliorum mucronatis* . . ." (BM) = BH Neg. 5771. Not *C. bahamensis* sensu Benthams, 1871, p. 541, which = *Senna mexicana* var. *chapmanii*.

Cassia ligustrina var. *jaegeriana* Urban, Symb. Antill. **5**: 360. 1908. — "Hab. in Haiti in montibus Le grand fond de Port-au-Prince dictis . . . 1000 m alt., m. Dec. fl. et fr.: *Jaeger* n. 36." (Type: (B); presumed isotype, *Jaeger*, s.n. ex Haiti (NY).)

Cassia ligustrina var. *eggersiana*, Urban, Symb. Antill. **5**: 360. 1908. — "Hab. in Santo Domingo in monte Barrero 330 m alt., m. Mayo flor . . . : *Eggers* n. 2063." (Type: (B).)

Ditremexa confusa Britton ex Britton & Rose, N. Amer. Flora **23**(4): 257. 1930. — "Type from between Higuey and Gato, Santo Domingo, December 6, 1909, N. Taylor 430." (Type: (NY).)

Weedy herb of disturbed places, becoming fruticose with age, up to 2 (3) m;

stems green, angular. Inflorescence axes, leaf axes and stems with sparsely scattered to dense curved white hairs. Stipules herbaceous, lanceolate to ovate, acute, base slightly unequally dilated, reflexed, early caducous. Leaves 13-22 (27) cm; petiolar gland distal to the discolored pulvinus (occasionally between proximal pair of leaflets), stipitate to subsessile, lance-acuminate to acute. Leaflets 5-11 pairs, lanceolate to lance-acuminate, accrescent distally, the longest 2.4-8.7 x (0.6) 0.8-1.9 (2.2) cm, \pm strongly asymmetric at the base, semi-rounded to semicordate, margins often ciliate, glabrous to pubescent, somewhat paler below. Racemes axillary or clustered terminally to form a corymbiform panicle; bracts lanceolate, amplexicaul cordate based, caducous. Pedicels 9-25 mm. Sepals ovate to obovate, the longest 5-7 (9) mm, pale-margined. Corolla zygomorphic; petals drying pale with dark veins, the standard broader than the rest, obcordate or flabellate, others subhomomorphic, obovate, the longest 9-16 mm. Fertile stamens 6; 4 median anthers opening by a single pore from a short obliquely truncate beak, 2 lateral abaxial anthers extended into a linguiform appendage behind the single oblique aperture; central abaxial anther sterile, shriveled; staminodes broad, orbicular. Pistil white pilose, style glabrous, stigma dilated and strongly recurved. Legume ascending, curved, plano-compressed, 9.5-14 x 0.5-0.8 cm, dehiscent; sutures not strongly thickened, valves with lighter bands of tissue near the sutures, darker brown in the center. Seeds ca. 3 mm, testa brown to greenish, cracked, areole broad, darker brown.

GENERAL DISTRIBUTION: Florida, Bahamas, Greater Antilles, Panama.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique.

COMMON NAMES: Séné-zombi, canéfice-bâtard, casse-savane.

Senna multijuga* (Rich.) Irwin & Barneby ssp. *multijuga* var. *multijuga, Mem. New York Bot. Gard. **35**: 495. 1982.

Basionym: *Cassia multijuga* Rich., Actes Soc. Hist. Nat. Paris **1**: 108. 1792. — "...e Cayenna ... missarum a domino LeBlond."

Type: *Leblond s.n.*, P (hb. Richard, 2 sheets). Isotype, P-LAM.

Cultivated tree up to 25 m, branches spreading; bark red-brown to grayish, lenticellate. Young parts pilose with golden hairs, these becoming more sparse and tawny with age. Stipules linear-subulate, unequal at base, caducous. Leaves 13-24 (35) cm; petiolar sulcus interrupted between the pulvinules by a line of large trichomes. Petiolar gland about 1/2 way between dark wrinkled pulvinus and proximal pair of leaflets, truncate, obtuse or acuminate. Leaflets 15-27 (37) pairs, mostly oblong to elliptic, the longest 2-3 (5.3) x 0.5-0.8 (1.3) cm, decrescent distally and proximally, strongly bicolored, nearly glabrous dorsally, sparsely pubescent and glaucous ventrally; the apex obtuse to truncate, mucronulate, the base cuneate to rounded. Panicles terminal; bracts lance-elliptic, caducous. Pedicels 10-18 (32) mm. Sepals petaloid, ovate to obovate, strongly unequal, the longest 4-6 (7) mm, glabrous, reflexed at anthesis. Corolla wholly irregular; petals drying pale with darker veins, the abaxial petal (alternating right and left up to raceme) much the largest, (14) 26-35 mm, strongly curved. Fertile stamens 7; 4 median anthers dehiscent by 2 parallel pores at the end of a short lateral

beak; 3 abaxial anthers apically attenuate to form a long tubular, porrect beak, opening by 2 pores; central abaxial stamen much shorter than the other 2; staminodes bifurcate. Ovary glabrous. Legume plano-compressed, 8-20 x 1.3-2.1 cm, short stipitate, with corrugated ridges over the seeds. Seeds oblong, testa brown or gray, crackled, the areole linear, elongate.

GENERAL DISTRIBUTION: Northern South America; widely cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique, St. Lucia!, St. Vincent!, Grenada!, Barbados.

COMMON NAMES: Canéficier bâlard.

Senna nitida (Rich.) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 159. 1982.

Basionym: *Cassia nitida* Rich., Actes Soc. Hist. Nat. Paris **1**: 451. 1792. — "e Cayenna ... missarum a domino LeBlond."

Type: "Sti. Johannis-Sti. Thomae-Tortolae," P (hb. Richard).

Syn.: *Chamaefistula antillana* Britton & Rose ex Britton & Wilson, Bot. Porto Rico **5**: 369. 1924. — "Type from St. Thomas (Britton & Marble 400)." Holotype, NY; isotype, US.

Shrub or liana of thickets, forest margins and other disturbed areas; young stems angular or ribbed. Inflorescence axes, leaf axes and young stems puberulent with dense to sparse matted hairs. Stipules linear-attenuate, falcately incurved, caducous. Leaves 8-17 cm; petiolar glands between both pairs of leaflets, stipitate, fusiform, acute or rounded. Leaflets exactly 2 pairs, ovate to elliptic, the distal pair much the larger, 5-11.5 x 2.7-5.2 (5.5) cm, abaxially lustrous, dark, often brown to reddish brown, lighter green below, both surfaces glabrous or sparsely puberulent below; base strongly asymmetric, semi-rounded to cordate, the proximal side cuneate, apex acuminate, margins more or less strongly revolute. Racemes axillary or forming a terminal leafless panicle; bracts obovate, cucullate, (1.5) 3-5 mm, acute, puberulent. Pedicels 14-26 (28) mm. Sepals yellowish, oblong-elliptic to ovate, the outer cucullate, not much graduated, the longest 4-7 mm, dorsally puberulent. Corolla zygomorphic; petals ovate, obovate or oblong, not strongly heteromorphic, the longest 12-25 mm, dorsally puberulent. Fertile stamens 5-6; anthers distally puberulent, differing slightly in length but little in shape, opening by 2 terminal pores from a lateral lip, or from a single U-shaped aperture. Ovary strigose, style and stigma thickened. Legume cigar-shaped on a 2-4 mm stipe, linear, terete, (10) 15-18 cm long, dehiscent; valves glossy brown, sutures not prominent. Seeds embedded in pulp, biseriate, 6-7 mm long, smooth, almost black, exareolate.

NOTES: This species is closely related to *S. undulata* (Bentham) Irwin & Barneby, q.v.; it is also very similar to the Jamaican *S. viminea* (L.) Irwin & Barneby, and the South American *S. quinquangulata* (Rich.) Irwin & Barneby, but is distinguished from both by having only 5-6 fertile stamens.

GENERAL DISTRIBUTION: Puerto Rico, St. Thomas, Tortola, St. Kitts, and possibly Haiti.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts.

***Senna obtusifolia* (L.) Irwin & Barneby**, Mem. New York Bot. Gard. **35**: 252. 1982.

Basionym: *Cassia obtusifolia* L., Sp. Pl. **1**: 377. 1753. — "Habitat in Cuba."

• Lectotype: Dillenius, Hort. Eltham. **71**, t. **62**, 1732, typotype OXF (hb. Dillen.).

Syn.: *Cassia tora* sensu Benth., 1870, p. 115 & 1871, p. 535, as regards American plants. Not *Cassia tora* L., 1753.

Emelista tora sensu Britton & Rose ex Britton & Wilson, Bot. Porto Rico, **5**: 371. 1924, excluding the basionym and most synonyms.

Coarse monocarpic herb, 3-24 dm; stems green, becoming somewhat woody; pubescent with long hairs when young, these becoming sparse with age. Stipules firm, linear, erect or incurved, 5-15 (17) mm, tardily caducous. Leaves 3.5-8 (17) cm long; petiole 1-4 cm. Gland between the first pair of leaflets and sometimes between the second as well, sessile or stipitate, lance-fusiform, attenuate, mucronate. Leaflets consistently 3 pairs, oblanceolate to broadly obovate, the largest (1.7) 3-5 (6.5) x (1) 1.8-2.6 (4) cm, accrescent distally, glabrous to pubescent on both faces; base mostly cuneate to semi-rounded, apex deltate-acute, mucronulate. Racemes 1- to 2-flowered, axillary; bracts lanceolate, early caducous. Pedicels (7) 11-20 (28) mm. Sepals green, oblanceolate, acute, unequal in size, the largest 5-9 mm, ciliolate, puberulent. Corolla zygomorphic; petals drying pale pink, all oblanceolate except the obcordate standard, the longest 8-11 (15) mm. Fertile stamens 7; anthers of the 4 median ones oblong, scarcely beaked, truncate at the biporate apex; anthers of the 3 longer ones contracted to a short neck and dilated slightly above this to a single oblique U-shaped pore; staminal nodes linear or slightly bifurcate. Ovary strigose, the style dilated but only slightly recurved. Legume turgid, nearly terete, (6) 7.5-15 (18) cm, ascending or arching out and downward; sutures darker green than the papery valves, dehiscent. Seeds rhomboid or distorted, 3.8-4.5 mm long, shiny, castaneous, testa crackled, areole linear.

NOTES: Although many specimens of *Senna obtusifolia* are labelled *Cassia tora* L., Irwin & Barneby contend that *Cassia tora* does not occur in the New World. They cite the distinctions made by Brenan (1958, 1967) as evidence. Using Brenan's descriptions, we have found a plant from Guadeloupe (Proctor 19847, GH) that appears, on the basis of its shorter pedicels and truncate abaxial anthers, to be *C. tora*; however, the most consistent characters for distinguishing the two species appear to be in the seeds, which are immature on the Proctor specimen. Until we have more conclusive evidence, we will therefore follow Irwin & Barneby and conclude that *C. tora* is purely Paletropical.

GENERAL DISTRIBUTION: Weedy throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts, Antigua!, Barbuda!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Séné, sou marqué (soumaké), sou-marqué bâtard, Italian senna.

REFERENCES: J. P. M. Brenan, Kew Bull. **1958**: 231-252. 1958 and Fl. Trop. E. Africa **2**: 77. 1967.

Senna occidentalis (L.) Link, Handbuch **2**: 140. 1829.

↓ Basionym: *Cassia occidentalis* L., Sp. Pl. **1**: 377. 1753. — "Habitat in Jamaica."

Neotype: LINN 528.13.

Syn.: *Cassia falcata* L., Sp. Pl. **1**: 377. 1753. — "Habitat in America." Type may be LINN 528.12.

Cassia planisiliqua L., Sp. Pl. **1**: 377. 1753. — "Habitat in America calidiore [fide Lam., Encycl. **1**: 645. 1785, on the island of Guadeloupe]." Based on *Cassia siliquis planis* Plum., Nov. Pl. Amer. **18**. 1703, illustrated in Burman, Pl. Amer. **4**: t. 77. 1756.

(?) *Cassia occidentalis* var. (beta) *aristata* Colladon, Hist. Nat. Méd. Casses **108**. 1816. — "... in Sto. Domingo et Guadalupe, *Badier*." Irwin & Barneby unable to find a type specimen for this name.

Coarse malodorous weedy herb, common in waste ground, usually 1-2 m high, stems green; plants mostly glabrous except for young pedicels, petioles and rachises, which are covered with short stout curved trichomes. Stipules firm, triangular-acuminate, 4-6 (11) mm, appressed to the stem, later reflexed and caducous. Leaves 10-16 (26) cm; petiole and rachis 3-ribbed dorsally, the petiole 3-5 cm; petiolar gland on or just distal to the pale wrinkled pulvinus, sessile, \pm hemispheric. Leaflets 4-6 pairs, lanceolate to lance-ovate, the largest 4.3-9 (10) x 1.3-3.1 (3.8) cm, ciliate, distally accrescent; pulvinules pubescent with short curved hairs; base inequilateral, semicordate to semi-rounded, apex acuminate. Racemes few-flowered on short (2-5 (7) mm) peduncles; bracts herbaceous, unequally lance-ovate, acuminate with broadly cordate base, (6) 10-15 (18) mm, caducous before anthesis. Pedicels pubescent, 8-11 (21) mm. Sepals often pinkish, obovate to oblanceolate, the longest (5) 6-9 mm. Corolla zygomorphic; petals drying pale with dark veins, oblanceolate but the standard obcordate, the longest ones 9-18 mm. Fertile stamens 6; anthers of the 4 median stamens and the 2 long abaxial ones similar although the latter somewhat larger, bases sagittate, the apex prolonged into a linguiform appendage abaxial to the single terminal aperture; central abaxial stamen sterile and much reduced; staminodes paddle-shaped. Ovary strigose, style glabrous, stigma broad and pubescent but not strongly recurved. Legume ascending, plano-compressed to \pm swollen at maturity, 6.5-13 x 0.5-0.8 (0.95) cm; sutures thickened, green to pale brown like the valve tissue extending from them, the central part of the valves darker brown, slightly mounded over the seeds, dehiscent. Seeds ovate to orbicular, ca. 4 mm long, dull gray to pale brown with ovate areole.

GENERAL DISTRIBUTION: Weedy throughout the New World tropics, north to eastern and central U.S., south to northern Argentina, not recorded from Pacific Peru or the Amazonian Hylaea.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin, Saba!, St. Kitts, Montserrat!, Guadeloupe, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados.

COMMON NAMES: Wild coffee, coffee bush, stinking weed, z'epiente, zeb piente, z'herbes puantes, wild French guava, stinking bush, pis-a-bed, dandelion, zépiante, casse puante, pois puant, café bâtarde, balam-bala.

Senna pallida (Vahl) Irwin & Barneby var. **pallida**, Mem. New York Bot. Gard. **35**: 537. 1982.

Basionym: *Cassia pallida* Vahl, Eclog. Amer. **3**: 12. 1807. — "Habitat ad St. Martham [Colombia]. von Rohr."

Type: c (hb. Vahl).

Syn.: (?) *Cassia biflora* L., Sp. Pl. **1**: 378. 1753, nom. ambig. — "Habitat in Indiis." No type extant.

(?) *Cassia tenuissima* L., Sp. Pl. **1**: 378. 1753. — "Habitat in Havana." No type at BM or LINN.

Shrub to small tree, up to 3 (4) m high, along roadsides and other open places; bark green to reddish, lenticellate. Plants glabrous to pubescent with long, bent hairs on younger parts. Stipules linear-lanceolate, caducous. Leaves 5-10 (18) cm; petiolar gland between or just distal to the proximal 1-3 pairs of leaflets, stipitate, ovate, acute to acuminate. Leaflets 4-8 (11) pairs, oblong to oblanceolate, the largest 2.4-3.5 (5.3) x (0.5) 1.1-1.8 (2.2) cm, decrescent proximally, much darker above than below, ciliolate or not, sparsely pubescent or glabrous, often with scattered resinous dots; bases rounded and equilateral to semicuneate, semicordate, apex obtuse, truncate, or acute, mucronulate. Racemes usually 2-flowered, axillary to foliage leaves or from short shoots, peduncles thin and flexuous; pedicels likewise slender, (4) 10-18 (23) mm, subtended by an acute, fusiform or clavate gland. Sepals green, obovate to orbicular, unequal, the longer (inner) ones (6) 8-10 (11) mm. Corolla irregular, 1 abaxial petal obliquely dilated; petals often drying pink, obovate, the longest (15) 16-22 (29) mm. Fertile stamens 7; 4 median anthers thick and curved, opening by 2 parallel slits from a scarcely protruding, laterally directed beak; 3 abaxial anthers with an attenuate tubular terminal beak, opening by a single pore. Ovary glabrous to strigose, style glabrous and recurved. Legume stipitate, compressed, (5) 6.6-10.5 (15) x 0.3-0.5 cm, becoming nearly black, dehiscent; valves papery, forming a characteristic X-shaped mound over the seeds. Seeds irregular, ca. 3 mm, brown areolate, the testa crackled.

NOTES: The name *Cassia biflora* L. has been used in the past for plants that Irwin & Barneby assign to either *Senna pallida* or *S. angustisiliqua*. Because there is no extant type of *Cassia biflora* and because the protologue could apply either to *S. pallida* or to *S. angustisiliqua*, Irwin & Barneby regard the epithet *biflora* as "insolubly ambiguous" and "regretfully" turn to the next earliest binomial.

GENERAL DISTRIBUTION: North in Mexico to southern Baja California, south through Central America to Colombia and Venezuela, east through Caribbean Venezuela to the Windward Islands; disjunct in Roraima, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique!, Grenada!.

Senna polyphylla (Jacq.) Irwin & Barneby var. **polyphylla** Mem. New York Bot. Gard. **35**: 519. 1982.

Basionym: *Cassia polyphylla* Jacq., Collectanea **4**: 104. 1791 & Icon. Pl. Rar. **3**(11): t. 460. 1792. — "In insula Porto rico sponte crescit; in caldario horti Caesariei Schönbrunnensis floret Aprili & Majo..."

Type: Hb. Jacq. ex hort. Schoenbrun., w.

Syn.: *Peirania polyphylla* (Jacq.) Britton & Rose ex Britton & Wilson, Bot. Porto Rico **5**: 373. 1924.

Shrubs or small trees to 8 m height, cultivated or wild in dry open sites; bark gray to brown. Young twigs, petioles and inflorescence axes pubescent with sparse appressed white to tawny hairs. Leaves dense from short shoots. Stipules linear, subulate, firm, persistent. Leaves 2.4-3.7 cm, those of long shoots up to 6 cm; petiolar gland sessile or short stipitate, ovate to fusiform, acute or acuminate, between the proximal pair of leaflets. Leaflets 6-13 pairs, oblong to obovate, the longest 3.5-9 (10) x 2.3-4.2 (4.5) mm, \pm equilong but somewhat decrescent proximally, commonly glabrous, the camptodrome secondary venation prominent abaxially; bases rounded to semicordate, apices obtuse to truncate or emarginate. Racemes mostly 2- (1- to 3-) flowered, axillary from short shoots; bracts oblanceolate, cucullate, caducous; peduncles and pedicels sparsely puberulent, filiform, flexuous, the latter (9) 12-16 (19) mm long, the flowers extending beyond the leaves. Sepals green with pale margins, ovate to orbicular, the longest (innermost) 4-6 (7) mm. Corolla irregular; petals not prominently heteromorphic, obovate, the longest 9-18 (26) mm. Fertile stamens 7; 4 median anthers terminating in a short porrect, truncate beak, opening by a single U-shaped pore or occasionally biporose, the 3 abaxial anthers having an attenuate tubular apical uniporate beak, curved so that the entire anther is somewhat sigmoid in profile. Ovary strigose (to glabrous), style short, conical and glabrous. Legume stipitate, compressed, irregularly contorted, (4.5) 12-14 x 0.5-0.8 (1) cm, dark brown to black at maturity, elevated over the seeds in a transverse mound, dehiscent; valves papery. Seeds ovate, compressed, ca. 3.5 mm, castaneous, the testa crackled, areole elliptic.

GENERAL DISTRIBUTION: Puerto Rico, Virgin Islands, Guyana, Surinam and southeast Brazil.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

Senna septemtrionalis (Viv.) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 365. 1982.

Basionym: *Cassia septemtrionalis* Viv., Elench. Pl. 14. 1802. — Description from cultivated plants, "ex hort. Tic. et Flor[entino]."

Type: None known.

Syn.: *Cassia laevigata* Willd., Enum. pl. hort. Berol. 441. 1809. Described from a plant cultivated at Berlin, unknown origin. (Type: B-w, #7952).

Adipera laevigata (Willd.) Britton & Rose ex Britton & Wilson, Bot. Porto Rico **5**: 371. 1924.

Coarse shrub up to 6 m high, in open woodland or disturbed areas, also cultivated; stems green fistular. Plants glabrous. Stipules lance-linear, prominently one-veined, very early caducous. Leaves 6-15 (25) cm long; petiolar glands short stipitate or sessile, clavate or ovoid, generally obtuse, between all pairs of leaflets, or between all but the distal pair. Leaflets 2-4 (5) ovate, elliptic or lanceolate, accrescent distally, the largest (3.5) 5.7-8 (10.5) x (1.1) 2.7-3.3 (3.5) cm, generally darker above than below; base subsymmetric, rounded to cuneate, apex acute to acuminate, mucronulate. Racemes axillary or terminal, few-flowered, at anthesis extending beyond the subtending leaf; bracts lance-linear to subulate, early caducous. Pedicels 12-20 (25) mm. Sepals obovate to orbicular, 6.5-10 mm long. Corolla zygomorphic; petals drying pale with dark veins, obovate to flabellate (the standard), the longest 12-16 mm. Fertile stamens 7, filaments of the 2 lateral abaxial ones much the longest; anthers all similar, opening by a single oblique U-shaped aperture. Pistil glabrous, recurved. Legume nearly quadrangular, ascending, moderately curved, 6-10 x 0.8-1.1 cm; sutures broad, green, valves brown and papery. Seeds brown, smooth, dull to lustrous, exareolate.

GENERAL DISTRIBUTION: Native to Mexico and Central America; established locally in West Indies; cultivated in Colombia, Peru, Brazil, Argentina, Chile, Africa, India, and southeast Asia.

DISTRIBUTION IN LESSER ANTILLES: Martinique, Barbados.

Senna siamea (Lam.) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 98. 1982.

Basionym: *Cassia siamea* Lam., Encycl. **1**: 648. 1785. — "Commerson dit que c'est un arbre cultivé à l'Île de Bourbon ... Cette belle espèce croît aux environs de Siam."

Type: P (hb. Lamk.)

Syn.: *Cassia florida* M. Vahl, Symb. Bot. **3**: 57. 1794. — "Habitat in India orientali." Type not seen by Irwin & Barneby.

Sciacassia siamea (Lam.) Britton ex Britton & Rose, N. Amer. Flora **23**(4): 252. 1930.

Cultivated tree up to 10 (15) m; bark dark-colored. Young parts covered with fine appressed velutinous indumentum. Stipules subulate, very early caducous (absent from all HUH specimens). Leaves 15-24 (35) cm, eglandular. Leaflets (5) 6-10 (14) pairs, oblong-elliptic to lance-oblong, the longest 4.4-7.8 x (1.1) 1.5-2.7 (3) cm, decrescent both distally and proximally, paler green below; base rounded, symmetric, apex obtuse, truncate or emarginate, mucronulate. Inflorescence a large stout panicle of corymbiform racemes; bracts lance-linear, dilated near middle, (3) 5-6 mm, caducous. Pedicels 17-30 (35) mm, flattened when dry. Sepals orbicular, the longest ones 5-9 mm, paler margined, velutinous abaxially, adaxially glabrous, reflexed at anthesis. Corolla zygomorphic; petals oblanceolate to obovate, the longest (10) 15-18 mm, glabrous. Fertile stamens 7; filaments broad, those of the abaxial anthers much the longest; anthers all similar in shape, sagittate at the base, constricted above to form a neck above which the apex flares slightly to form an oblique pollen cup with a U-shaped aperture, sometimes divided by a narrow septum. Ovary green, velutinous; style

glabrous, becoming coiled. Legume compressed, straight, (15) 19-27 (30) x 0.7-1.3 (1.6) cm, woody, brown, stipitate; sutures somewhat thicker and darker, forming alternate mounds and depressions over the seeds. Seeds compressed, discoid, 6-8 mm, testa brown lustrous, areolate.

GENERAL DISTRIBUTION: Forest margins in Burma and Thailand; cultivated throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, St. Lucia!

COMMON NAMES: Kas, casse.

***Senna sophera* (L.) Roxb., Fl. Ind. ed. 2, 2: 347, ("sophora"). 1832.**

↳ Basionym: *Cassia sophera* L., Sp. Pl. 1: 379. 1753. — "Habitat in India."

Lectotype: BM, (hb. Hermann 4: 79).

Syn.: *Cassia proboscoidea* Pollard, Bull. Torrey Bot. Club 23: 281. 1896 — "Collected by J. F. Waby at Hastings, Barbadoes, April-June, 1895. No. 24..." Holotype, US.

Ditremexa sophera (L.) Britton & Rose ex Britton & Wilson, Bot. Porto Rico 5: 372. 1924.

Large leafy frutescent herb in waste areas, up to 1-2 m tall; stems mostly green, highly branched, glabrous. Rachis and leaves glabrous but inflorescence axes and pulvinules sometimes pubescent with short stout curved trichomes. Stipules herbaceous, lance-acuminate, cordate-based, caducous. Leaves (7) 9-12 (21) cm; petiole 1-3 (4.7) cm; hemispheric to obtuse gland sessile or subsessile, on or just distal to the discolored pulvinus. Leaflets 3-8 pairs, lanceolate to lance-elliptic, the largest 2.3-9 x (0.7) 1.1-2.9 cm, accrescent distally; base inequilateral, hemicordate to hemirounded, apex acuminate, margin ciliolate. Racemes few-flowered, axillary, peduncles long, (4) 6-20 (23) mm; bracts herbaceous, oblanceolate, (5) 10-15 mm, caducous before anthesis. Pedicels (8) 11-19 mm. Sepals obovate, greenish, tinged with red, the longest 6-7 (8) mm. Corolla zygomorphic; petals yellow to orange, subhomomorphic and oblanceolate except for the obcordate standard, the longest 8-15 mm. Fertile stamens 6, the 4 median ones and 2 long abaxial ones with similar sagittate-based anthers apically protracted into an abaxial linguiform appendage; abaxial anthers much the larger; all opening by a single pore; central abaxial stamen sterile and linear; staminodes paddle-shaped. Ovary strigose, style glabrous, stigma dilated, pubescent and strongly recurved through at least 180 degrees. Legume early plano-compressed, becoming nearly terete at maturity, little indented between the seeds, 4.7-9.2 (10) x 0.7-1.1 cm; sutures thickened, valves with light colored regions next to sutures, a dark brown to black strip in the middle. Seeds soft gray to olivaceous, obovate, 3-4 mm, the testa crackled, areole broadly ovate.

GENERAL DISTRIBUTION: Circumcaribbean; Bahamas and West Indies, Mexico to Colombian Andes, and east to Guyana.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Barbuda!, Montserrat, Guadeloupe, La Désirade!, Dominica!, Barbados.

COMMON NAMES: Séné zombi, zépiante-bâta, zépiante-marron, canéfice.

Senna spectabilis (DC.) Irwin & Barneby var. **spectabilis**, Mem. New York Bot. Gard. **35**: 603. 1982.

Basionym: *Cassia spectabilis* DC., Cat. Pl. Horti Monsp. 90. 1813.

Type: "Hab. ad Caracas [Venezuela]." "Cult. in h[ort]. m[eo] oct. 1809," G-DC.

Syn.: *Pseudocassia spectabilis* (DC.) Britton & Rose, N. Amer. Flora **23**(4): 230. 1930.

Spreading introduced tree up to 15 (20) m tall; bark dark-colored. Pubescent throughout with thick curved to straight, tawny or golden trichomes. Stipules lance-linear, falcately incurved, very early caducous. Leaves 23-30 (45) cm, eglandular. Leaflets 4-15 (16) pairs, lance-ovate to lanceolate, the largest 4.8-7.5 (9.5) x (1.2) 1.5-3 cm, nearly equilateral but decrescent proximally, lustrous and darker adaxially; base nearly symmetric, rounded to cuneate, apex acute to acuminate, margins revolute. Inflorescence a large, showy terminal panicle of corymbiform racemes; bracts ovate, acuminate, caducous as the peduncle begins to elongate. Pedicels firm, (16) 19-34 (36) mm. Outer 2 sepals thick, orbicular and concave, shorter than the inner herbaceous obovate ones, the longest 5-9 (14) mm, becoming reflexed at anthesis. Corolla irregular, one abaxial petal (opposite the displaced pistil) much the largest, strongly obliquely distended and folded over the stamens, 17-28 (35) mm long; other 4 petals more nearly alike, obovate, drying pale with darker veins. Fertile stamens 7; 4 median anthers and central abaxial one opening by 2 terminal slits, the thecae separated at the apex; the 2 lateral abaxial anthers similar in size and shape, but opening by an acute, biporate, porrectly incurved beak; staminodes cordate or auriculate both apically and basally. Ovary glabrous. Legume nearly terete or becoming quadrangular, linear, (16) 21-27 (30) cm, thick, woody, nearly black, dehiscent; valves smooth or more often prominently corrugated. Seeds ovate to orbicular, about 5 mm long, areolate, pale brown, smooth.

GENERAL DISTRIBUTION: Range discontinuous over Central America, Colombia, Venezuela, Peru, Bolivia, Argentina, Paraguay, and Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, Barbados.

Senna sulfurea (Colladon) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 78. 1982.

Basionym: *Cassia sulfurea* DC. ex Colladon, Hist. Nat. Méd. Casses 84. 1816. — "Hanc Prof. de Candolle descripsit florentem mense novembri anni 1803 in horto Parisino."

Type: None at G, MPU, or P, but specimen at G-DC labeled "*Cassia sulfurea* Ile de France ou de Bourbon, Muséum de Paris, 1821" considered authentic by Irwin & Barneby.

Syn.: *Cassia glauca* Lam., Encycl. **1**: 647. 1785. — "... dans les environs de Pondichéry [s.-e. peninsular India]. M. Sonnerat nous en a communiqué des morceaux chargés de fleurs & de jeunes fruits." (Type: P-LA).

Cassia planisiliqua sensu Burman f., Fl. Indica 96. 1768, as described, excluding the basionym *C. planisiliqua* L., which = *Senna occidentalis* (L.) Link.

Psilorhegma planisiliqua (L.) Britton & Rose, N. Amer. Flora **23**: 255. 1930.

Cultivated tree to 10 m; young parts covered with fine yellowish appressed pubescence. Stipules linear-attenuate, falcate, caducous. Leaves 14-30 cm;

petiole 3-5.5 cm; gland between the proximal 2-4 pairs of leaflets stipitate, the body of the gland ovate, acute, dark; the longest interfoliolar rachis segments (13) 21-30 (33) mm. Leaflets 4-6 (7) pairs, ovate to elliptic, the largest (4) 5.7-7.6 (8.5) x (2) 2.3-3.5 (3.8) cm, accrescent distally, ciliolate, dark above, much paler below, glaucous, and sparsely pubescent below; base rounded to cuneate, apex rounded to obtuse, margin pale. Racemes axillary or distally paniculate, with generally fewer than 10 flowers; bracts lance-ovate, acuminate, reflexed and persistent through anthesis, proximal ones subtended by a stipitate gland. Pedicels 16-30 (42) mm. Sepals herbaceous, ovate to orbicular, much different in size, the largest 8-11 mm. Corolla zygomorphic; petals drying orange or pinkish brown, unequal, ovate to obovate, the longest 17-30 mm. Fertile stamens 10, similar in shape but becoming longer abaxially; anthers not beaked, each theca opening by a laterally directed, terminal suture. Ovary strigose; style and stigma glabrous, recurved. Legume plano-compressed, 10-17.5 x (1.3) 1.4-1.6 (1.8) cm, on a 10-18 mm stipe; valves dark brown, sutures paler, thickened. Seeds oblong-elliptic, lustrous, areolate.

GENERAL DISTRIBUTION: Native to tropical India and Burma, naturalized on disturbed sites elsewhere in the tropics.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe, Martinique, Barbados!.

Senna surattensis (Burman f.) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 81. 1982.

Basionym: *Cassia surattensis* Burman f., Fl. Indica 97. 1768.

Type: "*Senna surattensis* Garzin herb.," G (hb. Burman annotated as type by K. Larsen, 1978).

Cultivated tree, in most respects similar to the closely related *S. sulfurea*, q.v. Leaves 7-15 (18) cm; petiolar glands between the first 2-4 pairs of leaflets, stipitate, clavate; longest interfoliolar rachis segments 9-17 mm. Leaflets (6) 7-9 (10) pairs, ovate to elliptic, the largest 2-5 x 0.8-2 cm, accrescent distally, dark above, paler and sparsely pubescent below; base rounded to semicordate, apex rounded to obtuse. Inflorescence a few-flowered axillary raceme; bracts lance-acuminate, becoming reflexed, persistent through anthesis, occasionally subtended by a claviform gland. Pedicels 16-26 mm. Sepals herbaceous, obovate to oblanceolate, very unequal in length, the longest 6-7 (8) mm. Corolla zygomorphic; petals ovate to obovate, unequal, the longest 16-24 mm. Fertile stamens 10, similar in shape but the filaments becoming longer abaxially; anthers not beaked, each theca opening by a laterally directed terminal suture. Ovary strigose, style and stigma glabrous, recurved. Legume plano-compressed, 7-10 x 1.1-1.4 cm, stipitate, dark brown; suture scarcely thickened. Seeds ca. 5 mm, lustrous, areolate.

GENERAL DISTRIBUTION: Cultivated and locally weedy in Old World tropics, Hawaii, Florida, and Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!.

Senna undulata (Bentham) Irwin & Barneby, Mem. New York Bot. Gard. **35**: 157. 1982.

Basionym: *Cassia undulata* Benth., J. Bot. (Hooker) 2: 76. 1840. — "Woods skirting the savannahs. British Guiana. *Schomburgk n. 86*. — Trinidad, *Lockhart*."

Lectotype: *Schomburgk 86*, collected in 1836, K (hb. Benth.) = IPA Neg. 86 = NY Neg. 1442; isotypes, B = F Neg. 1761, F, and locality "Essequibo," K, US; paratype, *Lockhart s.n.*, K (hb. Benth.).

Syn.: *Chamaefistula undulata* (Benth.) Pittier, Trab. Mus. Com. Venez. 3: 121. 1928.

Lianas or weak shrubs of thickets and forest margins; young branches angulate or ribbed. Inflorescence axes, leaf axes, and young stems covered with fine spreading or appressed hairs. Stipules firm, lance-acuminate, falcately incurved, prominently nerved, caducous. Leaves 8-18 cm; petiolar glands between both pairs of leaflets, subsessile to stipitate, lance-ovoid and acute to apically rounded and more or less clavate. Leaflets exactly 2 pairs, lanceolate to ovate, the distal pair much the larger, (5) 6.5-11.5 x (1.7) 2.4-4.5 cm; base strongly asymmetric, semirounded to semicordate, apex acute to acuminate, mucronulate, camptodrome secondary venation prominent on most leaves, dark and lustrous above, paler below, glabrous adaxially, puberulent abaxially. Racemes few-flowered, axillary, or distally extending beyond the leaves to form a leafless panicle; bracts persistent into anthesis, lanceolate to obovate, acuminate, (6) 8-15 mm long. Pedicels 17-24 (30) mm, pubescent. Sepals obovate to oblong, subisomorphic, outermost cucullate, the longest 6-7 mm, dorsally pubescent. Corolla zygomorphic; petals subisomorphic, oblong-elliptic to obovate, the longest 11-19 (20) mm, dorsally pubescent. Fertile stamens 7; anthers similar in shape but the 3 abaxial somewhat shorter, all firm, opening by 2 upwardly directed terminal pores, these laterally displaced onto a small lip. Ovary densely pilose, style and stigma short and thick. Legume short-stipitate, straight, subcylindric, (8) 19-23.5 (26) x 0.9-1.2 cm, pendulous, woody, dark, dehiscent. Seeds biseriate, compressed, ovoid, ca. 5 mm, testa dark brown, exareolate.

NOTES: This species may be confused with the Jamaican *S. viminea* (L.) Irwin & Barneby, from which it is most easily distinguished by having glands between both pairs of leaflets; *S. viminea* has glands only between the proximal pair. It is also closely related to *S. quinquangulata* (L. C. Richard) Irwin & Barneby, a South American species with larger leaves, and to *S. nitida* (L. C. Richard) Irwin & Barneby, q.v., a narrowly distributed West Indian endemic with only 5-6 fertile stamens.

GENERAL DISTRIBUTION: Widespread over parts of central and South America; northeastern Brazil, north to Trinidad and St. Vincent, across northern Venezuela and Colombia and north to southern Mexico.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!

Senna uniflora (Miller) Irwin & Barneby, Mem. New York Bot. Gard. 35: 258. 1982.

Basionym: *Cassia uniflora* Miller, Gard. Dict. ed. 8, *Cassia* no. 5. 1768. — "*Senna spuria herbacea orobi Pannonici foliis*... Houston MSS... sent me from Campeachy by the late Dr. Houston."

Type: "Campeachy, Houston, 1730," BM (plant second from left only).

Syn.: *Cassia sericea* Sw., Prodr. 66. 1788 and Fl. Ind. Occid. 2: 724. 1798, substitute illegitimate name.

Seriocassia uniflora (Miller) Britton ex Britton & Rose, N. Amer. Flora **23**(4): 246. 1930.

Coarse monocarpic malodorous herbs, becoming fruticose with age, 2-12 dm, widespread and weedy. Entire plant hirsute with spreading to appressed tawny and white hairs. Stipules linear-attenuate, caducous. Leaves 5-9 (16) cm long, sensitive; gland long stipitate, pubescent, fusiform, acuminate, between all but the distal pair of leaflets. Leaflets 3-5 pairs, obovate to oblanceolate or sometimes obcordate, accrescent distally, the distal or penultimate pair the largest (2) 3-5.4 x (1) 1.8-3.4 cm, hirsute on both surfaces, somewhat lighter below; base rounded to semicordate, apex acute to rounded or emarginate, mucronate to aristate, margin thickened with longer hairs. Raceme axes very short at anthesis, the flowers opening one at a time, exceeded and partially obscured by the already expanded leaves; peduncles becoming (3) 8-15 (20) mm at maturity, but much shorter at anthesis; bracts linear-attenuate, similar to but shorter than the stipules, persistent through anthesis. Pedicels 3-5 mm, subtended by a gland much like those on the leaves. Sepals ovate to obovate, not strongly graduated, the longest 2-4 mm, only the outer ones hirsute. Corolla zygomorphic; petals yellow to orange, subhomomorphic, obovate, the longest 3.5-7 (8) mm, obtuse to emarginate, glabrous, fugacious, not lasting more than a day. Fertile stamens 7, accrescent abaxially; anthers similar, all opening by an oblique chevron-shaped pore, often dehiscent before the flower opens. Ovary and style hirsute, stigma flared and obconic. Legume erect, linear, flattened early in development but becoming subterete at maturity, 2.4-5.5 x 0.3-0.45 cm, brown, hirsute, distinctly grooved between the seeds. Seeds (5) 6-10 (12), obliquely rhombic, ca. 4 mm long, areole sigmoid or occasionally straight.

GENERAL DISTRIBUTION: Mexico, Central America, northern Venezuela, eastern Brazil, Antilles.

DISTRIBUTION IN LESSER ANTILLES: Barbados.

SWARTZIA Schreber

Swartzia Schreber, Gen. Pl. **2**: 518. 1791, nom. cons.

Syn.: *Tounatea* Aublet, Hist. Pl. Guiane **1**: 549, t. 218. 1775. Type species: *Tounatea guianensis* Aublet.

Trees, shrubs or vines. Stipules caducous or persistent. Leaves odd pinnate; petiole and rachis winged or terete; leaflets 1 to 31, opposite, often with stipels. Inflorescences axillary racemes, single or fasciculate. Flowers pedicellate; hypanthium negligible; calyx segments 2 to 5; petals 0 or 1, clawed; stamens numerous, dimorphic, some with longer filaments and larger anthers than others; ovary stipitate, stipe arising from torus, style slender, terminal or lateral. Legumes ovate, slightly flattened; seeds 1 to several, arillate.

TYPE SPECIES: *Swartzia alata* Willd. (= *S. guianensis* (Aublet) Urban).

A neotropical genus of 127 species. For more information, see R. S. Cowan, Flora Neotropica Monograph **1**: 1-228. 1968.

CULTIVATED SPECIES

Swartzia pinnata (Vahl) Willd., a species native to Trinidad and Venezuela, was once cultivated on Martinique.

Swartzia panacoco (Aublet) Cowan var. *panacoco*, of lowland forests of French Guiana, was also cultivated on Martinique.

KEY TO THE SPECIES

Leaves unifoliate; petal present *S. simplex*
 Leaves pinnate, leaflets 5 or 7; petal absent *S. caribaea*

Swartzia caribaea Griseb., Fl. Brit. W. Indian Is. 212. 1860.

Lectotype: St. Lucia, *Anderson s.n.* (K).

Syn.: *Tounatea caribaea* (Griseb.) Taubert, Bot. Centralbl. 47: 390. 1891.

Tunatea caribaea (Griseb.) Kuntze, Revis. Gen. Pl. 1: 211. 1891.

Tree to 20 m tall, dbh to 6 cm; bark smooth, mottled gray-brown; young stems puberulent, glabrescent. Stipules deltate to subulate, 0.6-1.1 mm long, caducous. Leaves pinnate, with petioles 0.9-2.4 cm long, puberulent especially on pulvinus; rachis terete; blades 11-24 x 9.4-22.5 cm; leaflets 5 or 7, with petiolules 2-4 mm long, blades elliptic to oblanceolate, 3.9-14.7 x 1.6-5.5 cm, glabrous adaxially, puberulent abaxially, base cuneate, apex abruptly acute to acuminate (rarely rounded). Racemes 8-34 cm long, pubescent; bracts deltate, 0.6-1.1 mm long, persistent. Flowers with pedicels 7-18 mm long, pubescent; calyx lobes rupturing irregularly, elliptic to ovate, 5-8 mm long, glabrous adaxially, puberulent abaxially, white, becoming reflexed and woody; petals absent; larger stamens 2, only slightly longer than short stamens, but notably thicker; ovary stipitate, strigose, stipe 3.5-5 mm long, style hooked, stigma punctate. Legumes inflated, ovate to ellipsoid, 4.1-7.2 x 2.2-2.7 cm, woody, glabrescent, dehiscent, yellowish-brown to orange or red; seed 1, ovate, 2-3.2 x 1.8-2.2 cm, black with white aril.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, St. Lucia!.

COMMON NAMES: Acoquois, acoucoua, arcoquois, bois maler, bois du bras de sable, bois olivier, coco nègre hebrew, graine agouti, olivier, brésillette, yoranger, miscad marrow, wild nutmeg, kas, casse.

Swartzia simplex (Sw.) Sprengel, Syst. Veg. 2: 567. 1825.

FIGURE 161.

Basionym: *Possira simplex* Sw., Prodr. 82. 1788.

Type: West Indies, *Swartz s.n.* (holotype, s).

Syn.: *Rittera simplex* (Sw.) Vahl, Symb. Bot. 2: 60. 1791.

Rittera grandiflora Vahl, Eclog. Amer. 2: 37. 1798. (Type: Trinidad, *Ryan s.n.* (C, LE, S).)

Swartzia grandiflora (Vahl) Willd., Sp. Pl. 2: 1220. 1800.

Swartzia simplicifolia Willd., Sp. Pl. 2: 1219. 1800, nom. superfl.

Tounatea simplex (Sw.) Taubert, Bot. Centralbl. 47: 391. 1891.

Tunatea simplex (Sw.) Kuntze, Revis. Gen. Pl. 1: 211. 1891.

Swartzia simplex (Sw.) Sprengel var. *genuina* Urban, Symb. Antill. 5: 364. 1908.

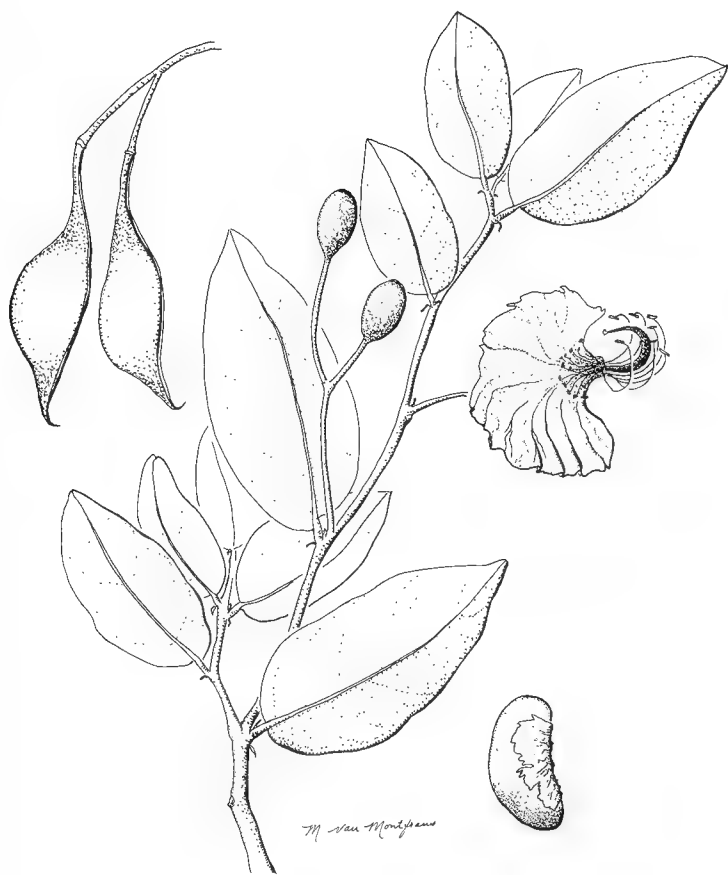


FIGURE 161. *Swartzia simplex*, x 0.35.

Tree to 18 (35) m tall; young twigs sparsely puberulent, glabrescent. Stipules linear or subulate, 1.1-5.3 mm long, or rarely longer and foliaceous, more or less persistent. Leaves unifoliate, with petioles 2-5 mm long, thickened, puberulent, terete; blades ovate to elliptic, 5.5-17.5 x 1.9-8.1 cm, glabrous, base cuneate to rounded, apex acute to short-acuminate. Racemes 1- to 4-flowered, rachis and pedicels glabrescent; bracts deltate to oblong, 0.5-1.5 mm long, puberulent, caducous. Flowers with pedicels 1.5-3 mm long; calyx lobes irregular, 9-16 mm long, splitting, reflexed; petal 1, clawed, reniform, 20-36 x 41-49 mm, glabrous, yellow; stamens with long filaments 25-29 mm long, short ones 10-12 mm, glabrous; ovary stipitate, glabrous, stipe 9-16 mm long, style slender, persistent in fruit, stigma capitellate. Legumes ovate, 3.2-4.5 x 1.4-2.2 cm, orange; seeds 1 to 3, reniform, 1.5-3 x 0.8-1.5 cm, black, with shaggy white aril.

GENERAL DISTRIBUTION: Mexico, Central America, West Indies, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Dominica!, Martinique!, St. Vincent!, the Grenadines!.

COMMON NAMES: Z'oranges.

NOTES: According to Cowan (loc. cit., p. 174) all Lesser Antillean material of this species belongs to the typical variety.

TAMARINDUS L.

Tamarindus L., Sp. Pl. 1: 34. 1753.

Trees; bark gray, wrinkled; branches pendulous. Stipules minute, caducous. Leaves evenly pinnate. Inflorescences terminal and axillary racemes; bracts 2 per flower, fully enclosing bud, valvate, caducous. Flowers pedicellate, with hypanthium infundibular; calyx lobes 4, imbricate; petals 5, unequal, 3 upper ones large and showy, 2 lower ones minute and scalelike; fertile stamens 3, alternating with 4 or 5 sterile stamens reduced to short teeth, filaments fused about 1/2 their length to form a flat band; ovary stipitate, stipe adnate to hypanthium, style slender, stigma subcapitate. Legume sausage shaped, straight or curved, indehiscent, surface crustaceous; seeds several, embedded in sweet pulp, separated by septa.

TYPE SPECIES: *Tamarindus indica* L.

A monotypic genus native to the Old World tropics and now widely cultivated. It was an early introduction to the West Indies. The flowers, leaves and young fruits are cooked and eaten. When the fruits are mature, the thin shell is broken off to leave the sugary pulp, which is used as an extract for a drink, ice cream, jellies, or in curries.

Tamarindus indica L., Sp. Pl. 1: 34. 1753.

FIGURE 163.

Type: Not designated.

Syn.: *Tamarindus occidentalis* Gaertner, Fruct. Sem. Pl. 2: 310, t. 146, f. 2. 1791. (Type: Not designated.)

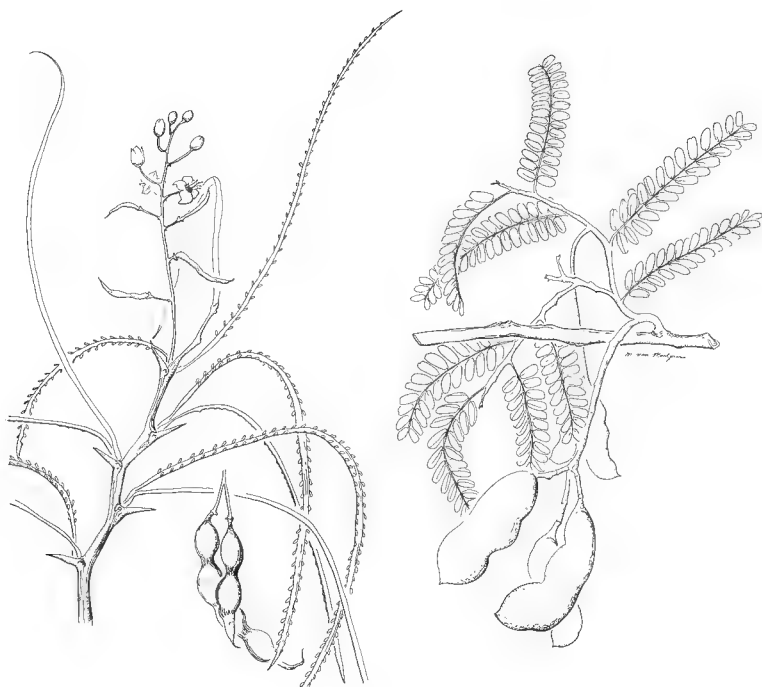


FIGURE 162 (left). *Parkinsonia aculeata*, x 0.35. FIGURE 163 (right). *Tamarindus indica*, x 0.35.

Tree to 20 m tall; new growth stiffly puberulent, soon glabrous. Leaves with petioles 2-11 mm long, glabrous or with a few sparse trichomes; blades 7.4-13.4 x 2-4.2 cm; leaflets 18 to 36, subsessile, with blades oblong, 8-23 x 4-8 mm, glabrous, base rounded, strongly asymmetric, apex obtuse, truncate or retuse. Racemes 4.2-29 cm long, rachis sparsely golden-puberulent near nodes; bracts oblanceolate, 7.6-9.7 mm long, apex acute, glabrous abaxially, tomentose on margins and adaxially. Flowers with pedicels 4.5-8.1 mm long, golden-puberulent below; hypanthium 2.3-7.7 mm long, glabrous; calyx lobes oblong-elliptic, 8-10.8 mm long, glabrous and reddish abaxially, sparsely puberulent and yellow adaxially, becoming reflexed; upper petals elliptic to oblanceolate, 7.3-11 x 4.6-6.2 mm, crinkly, glabrous abaxially, puberulent on midvein below adaxially, yellow with red veins; stamens tomentose below; stipe and ovary strigose. Legumes 8.1-14 x 2.2-3 cm, golden brown; seeds several, rhombic, 11-17 x 10-12 mm, brown, shining.

GENERAL DISTRIBUTION: Cultivated throughout the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Barbuda!,

Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAMES: Tamarind, tamarin, tamarinier, tamarin-bord-de-mer, tamarin-petites feuilles, tanmawen.

FABOIDEAE

Flowers irregular, adaxial (upper) petal external to and overlapping adjacent lateral petals, generally the largest, flowers mostly papilionaceous, two lower petals usually partly connate forming a keel; stamens 10, rarely fewer, usually one free and the others united or rarely stamens united into 2 groups of 5 or all free or all united, filaments usually forming a sheath; leaves mostly compound, occasionally palmately compound or unifoliate; seeds without a pleurogram, occasionally with an aril.

KEY TO THE GENERA

1. Trees or woody shrubs 2 m or more high.
 2. Leaves 1-foliate.
 3. Inflorescence longer than leaves; flowers included in foliaceous bracts; fruit 1-seeded slightly turgid pod *Flemingia*
 3. Inflorescence shorter than leaves; bracts small, not foliaceous or concealing flowers; fruit flattened or winged *Dalbergia*
 2. Leaves 3-foliate, ternate or pinnate.
 4. Leaves 3-foliate or ternate.
 5. Trees often flowering in leafless condition, commonly spiny, standard larger than other petals, fruit torulose, valves thick and woody, seeds brown, red or black, but all one color *Erythrina*
 5. Shrubs, not spiny, leaves commonly silky pubescent and glandular, fruit flattened, membranous, seeds variegated, flowers primarily yellow with red or brown *Cajanus*
 4. Leaves pinnately compound.
 6. Leaves evenly pinnate, flowers long-peduncled in axils of leaves, bright red *Sabinea*
 6. Leaves odd pinnately compound.
 7. Leaflets alternate, rarely subopposite.
 8. Plants with recurved spines; corolla blue; fruit flattened, strongly curved or hippocrepiform *Machaerium*
 8. Plants without spines.
 9. Fruit discoid, 1- rarely 2-seeded, inflorescence much shorter than leaves, flowers white or yellow; coastal plants *Dalbergia*
 9. Fruit flattened, seed lateral, wing to one side, inflorescence longer than petiole, flowers yellow; riverbank plant with buttress roots *Pterocarpus*
 7. Leaflets opposite.
 10. Fruit flattened, bivalved.
 11. Fruit linear, elongated, many-seeded, septate between seeds, flowers large 1-5 cm long *Sesbania*
 11. Fruit wider, 1-7-seeded.

12. Valves coriaceous, pubescent, flowers deep purple to black; flowering with leaves present.
 13. Seeds 1 or 2 or 3, red *Ormosia*
 13. Seeds 1 red *Dussia*
12. Valves chartaceous, fruit 1-7-seeded; commonly flowering in leafless condition.
 14. Leaflets 8 pairs, fruit 6-7-seeded *Gliricidia*
 14. Leaflets 3 or 4 pairs, fruit 1- or 2- or 3-seeded *Lonchocarpus*
10. Fruit moniliform, winged, or 1-seeded and fleshy.
 15. Fruit with 4 papery wings, breaking into short segments *Piscidia*
 15. Fruit moniliform or fleshy and 1-seeded.
 16. Leaves oblong, obtuse, fruit moniliform, 4- or 5-seeded, long-beaked, flowers yellow *Sophora*
 16. Leaves acute-acuminate, fruit 1-seeded, fleshy, indehiscent; flowers pink-purple *Andira*
1. Lianas, herbaceous climbing plants or herbs.
 17. Climbing woody vines or herbaceous vines slightly woody, rarely high climbing.
 18. Stout climbing woody vines or rarely herbaceous or trailing.
 19. Flowers not papilionaceous, keel petal largest, deep purple; calyx and pods commonly with irritating hairs or at least densely pubescent *Mucuna*
 19. Flowers papilionaceous, all petals about equal, without irritating hairs.
 20. Calyx 2-lipped, upper sepals fused; pods glabrous, elongate, generally several-seeded with 1 or 2 submarginal ridges; seeds with hilum shorter than seed; flowers pink or white *Canavalia*
 20. Calyx nearly equally 4-toothed; seeds 1 or 2, large, hilum linear and nearly encircling seed; pods glabrous or pubescent; flowers pink-purple *Dioclea*
 18. Herbaceous vines or if slightly woody rarely high climbing.
 21. Leaves evenly pinnate ending in a bristle, leaflets small, numerous; seeds bright red and black *Abrus*
 21. Leaves 5-7-foliolate or trifoliolate.
 22. Leaflets 5 or 7.
 23. Leaflets 5; flowers yellow; fruit terete, separating into 1-seeded articles *Chaetocalyx*
 23. Leaflets 7, rarely 5; flowers blue, rarely white, sometimes double; pods 2-valved, valves twisting after separation *Clitoria*
 22. Leaflets 3.
 24. Pods distinctly septate between seeds.
 25. Style in fruit strongly curved or hooked.
 26. Pods glabrous; style hooked upward in fruit *Teramnus*
 26. Pods copiously pubescent, style short in fruit or hooked downward.
 27. Leaflets broadly rhomboidal, cuneate at base, erose or shallowly lobed; fruits 8-14 x 1-1.6 cm *Pachyrhizus*
 27. Leaflets ovate, rounded at base, margins entire; fruits smaller 2.5-6 x 0.3-0.8 cm ... *Calopogonium*

- 25. Style extended in fruit nearly straight.
 - 28. Pod strongly margined; flowers large, pink to white *Centrosema*
 - 28. Pod without conspicuous margins; flowers smaller, purple *Pueraria*
- 24. Pods not septate between seeds.
 - 29. Fruit more than 1 cm wide, margins warty or with callosities, seeds 2 or 3 large *Lablab*
 - 29. Fruit mostly less than 1 cm wide, margins not warty, seeds mostly small.
 - 30. Leaves with scattered resinous dots; pods mostly 1- or 2-seeded, seeds red, red and black, mottled brown or black *Rhynchosia*
 - 30. Leaves lacking resinous dots; seeds never red or bicolored.
 - 31. Calyx 4-lobed with 2 upper sepals joined; flowers red, pink or white; style glabrous or pubescent only at base *Galactia*
 - 31. Calyx 5-lobed; flowers never red or pink.
 - 32. Fruit margined below suture; flowers large, white, keel straight *Clitoria*
 - 32. Fruit without margin; flowers small or large, yellow or white, keel commonly coiled.
 - 33. Thickened part of style and keel twisted more than 360°, stipules not produced below point of attachment ... *Phaseolus*
 - 33. Thickened part of style bent not more than 180°, usually gently curved, mostly densely barbate; corolla yellow, blue or purple *Vigna*
- 17. Herbaceous plants.
 - 34. Pods 2-valved, dehiscent.
 - 35. Leaves digitately 3-foliolate, unifoliolate or simple.
 - 36. Fruit turgid or inflated, not septate, seeds often free and rattling when fruit is mature; flowers yellow or blue *Crotalaria*
 - 36. Fruit linear, terete, septate, valves twisting tightly after separation; flowers blood red on long pedunculate inflorescence; leaves 3-foliolate *Macroptilium*
 - 35. Leaves pinnate.
 - 37. Inflorescence terminal; pod flattened, not septate, valves twisting *Tephrosia*
 - 37. Inflorescences axillary; pod turgid or terete, rarely flattened.
 - 38. Hairs malpighiaceous or medifixed; flowers pink or orange *Indigofera*
 - 38. Hairs basifixed; flowers pink, white or yellow.
 - 39. Leaves odd pinnate; style bearded *Cracca*
 - 39. Leaves evenly pinnate; style glabrous *Sesbania*
 - 34. Pods indehiscent or a jointed loment.
 - 40. Pods indehiscent.
 - 41. Leaves pinnate, leaflets numerous, toothed at apex; flowers blue; pod coiled *Medicago*

41. Leaves 3-foliolate, margin even; flowers yellow; fruit geocarpic, swollen, straight, surface reticulate veined *Arachis*
40. Pod a jointed loment.
42. Leaflets 1, 2 or 4.
43. Leaflets 1.
 44. Leaflet broader than long; fruit folded at joints, glabrous, enclosed in inflated calyx *Christia*
 44. Leaflets longer than broad; fruit straight or curved but not folded.
 45. Fruit terete or flattened at edges *Alysicarpus*
 45. Fruit flattened, rarely terete, more or less constricted between articles, pubescent with hooked hairs *Desmodium*
43. Leaflets 2 or 4, inflorescence persistently bracteate, often hiding fruit *Zornia*
42. Leaflets 3 or more.
 46. Leaves pinnate with several to many leaflets; fruits flattened, glabrous or, if pubescent, hairs straight, often turning black on drying; flowers yellow *Aeschynomene*
 46. Leaves 3-foliolate or subdigitately 3 leaflets.
 47. Flowers in terminal capitate clusters; pod of 2 articles, terminal hooked with persistent style; stipules united to petiole, stipels wanting, leaflets subdigitate . *Stylosanthes*
 47. Flowers in elongated inflorescences, rarely in subcapitate clusters; stipules free from petiole, stipels present, leaves 3-foliolate; fruit of more than 2 articles although only 1 or 2 may be with seeds, pubescence of short hooked hairs, styles not persistent as hooks *Desmodium*

CULTIVATED TAXA

The following taxa are represented by older collections from botanical gardens or have been cited from the area. They have not become naturalized and have not been recollected.

Baikiaea insignis Benth. and *B. minor* Oliver were once cultivated on Dominica.

Barbiera pinnata (Pers.) Baillon is an attractive species of the Greater Antilles. Velez reported it from several islands in the Lesser Antilles on the basis of his own collections. No specimens have been located for verification of the records.

Butea monosperma (Lam.) Taubert was introduced to St. Vincent before 1800 by Anderson as *B. frondosa* Roxb. It was once cultivated on Dominica as well.

Clathrotropis brachypetala (Tul.) Kleinh. was collected by Guilding (κ) on St. Vincent.

Coursetia arborea Griseb. was described on the basis of specimens from Trinidad. It was collected by Belanger (P) in the St. Pierre botanical garden before 1900 but also from Martinique by Mouret (P) after the destruction of that garden by the eruption of Mt. Peleé. Duss reported the plant to be on Guadeloupe and Dominica. Annotations on other specimens suggest this is *Callistylon arboreum* (Griseb.) Pittier.

Derris elliptica (Roxb.) Benth. has been cultivated on Martinique and *Derris scandens* (Roxb.) Benth. was collected in 1977 on St. Kitts.

Dialium guineense Willd. was introduced by Anderson to the St. Vincent botanical garden, where one tree remains in cultivation.

Inocarpus fagiferus (Parkinson) Fosberg was cultivated as *Inocarpus edulis* Forst. on Martinique and St. Vincent before the turn of the century.

Myrospermum frutescens Jacq. Once cultivated in the St. Pierre botanical garden on Martinique.

Platymiscium platystachyum Benth. ex Griseb. (sphalma for *P. polystachyum*) was reported from St. Vincent on the basis of a Guilding collection. R. O. Williams (1930) repeats the citation of St. Vincent, calling the plant *P. trinitatis* Benth. Gooding et al. (1965) indicated that the plant was cultivated on Barbados as *P. polystachyum* Benth. It was also grown in the botanic garden on Grenada in 1908.

Pongamia pinnata (L.) Pierre, now known as *Derris indica* (Lam.) J. J. Bennett was in the botanic garden on Dominica and was reported by Gooding et al. to be on Barbados.

Psophocarpus tetragonolobus (L.) DC. is known as the winged bean. Hamilton (Gard. Mag. 6: 315. 1830) reported this plant in cultivation in the Lesser Antilles before 1830. Recently several agricultural departments have expressed an interest in acquiring the plant for cultivation. No herbarium specimens have been seen.

Strongylodon macrobotrys A. Gray is currently cultivated in one private garden on Montserrat.

ABRUS Adans.

Abrus Adans., Fam. Pl. 2: 327. 1763.

Slender often woody vine. Leaves alternate, paripinnate, the rachis ending in a small bristle, leaflets many, opposite, entire. Inflorescence axillary or terminal, the flowers clustered on reduced branches, bracts small; calyx campanulate, subtruncate, with 5 short teeth; corolla white, pink or reddish; stamens 9 joined in tube, ovary sessile, ovules many, style short, not bearded, stigma capitate. Legume flat, linear-oblong, somewhat inflated, compressed between the seeds, dehiscent by two valves, seeds subglobose or ellipsoid, shining, bright red and black.

TYPE SPECIES: *Abrus precatorius* L.

A pantropical genus of 17 species.

Abrus precatorius L., Syst. Nat. ed. 12, 2: 472. 1767.

FIGURE 164.

Basionym: *Glycine abrus* L., Sp. Pl. 2: 753. 1753.

Lectotype: Ceylon, P. Hermann, Herb. no. 2: 6 (BM).

Climbing or twining woody slender vine, to 3 m long, forming tangles. Stipules linear, 3-5 mm long, acute; petioles > 1 cm, leaves 5-10 cm long, sparingly pubescent; leaflets 8-15 pairs, blades oblong or the upper obovate, 8-20 mm long, 4-7 mm wide, apex rounded and mucronulate, base rounded. Racemes on peduncles to 8 cm long; calyx 3 mm; corolla red to purple, rarely white, standard 10 x 6 mm, wings 8 x 1.5 mm, keel 9-10 mm. Legume oblong, 2-3.5 cm long, 1 cm wide, beaked; seeds 3-5, subglobose, to 6 mm long, scarlet and black.

GENERAL DISTRIBUTION: Probably worldwide in the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Les Saintes!, Dominica!, Martinique!, St. Vincent!, Grenada, Barbados!.

COMMON NAMES: Crab's eye, jumbie bean, wire wiss, liquorice plant, gwen léglise.



FIGURE 164. *Abrus precatorius*, x 0.5.

REFERENCE: B. Verdcourt, Kew Bull. **24**: 235. 1970.

NOTE: The West Indian specimens have been annotated as ssp. *africanus* by Verdcourt and have smaller tuberculate pods than the typical plants.

The seeds do contain a highly toxic compound and should not be eaten. They are used in jewelry and for beads. In the West Indies stirring sticks for cocktails are made of a raw cashew fruit with *Abrus* seeds for eyes, to resemble a head. These are sold to tourists. They can cause trouble when the toxic materials in the cashew are dissolved in alcohol.

AESCHYNOMENE L.

Aeschynomene L., Sp. Pl. **2**: 713. 1753.

Herbs or shrubs, erect or trailing plants. Stipules peltate, attached at the base or with appendages below point of attachment; leaves pinnately compound, terminal leaflet present or wanting, few to many foliolate. Inflorescence of terminal or axillary racemes; calyx 5-merous, bilabiate or campanulate; petals yellow to red or purple; stamens 10, filaments united; ovary stipitate, style glabrous, stigma capitate. Legume stipitate, 2- to many-jointed; articles flat or convex, indehiscent; seeds reniform, brown to black, lustrous, hilum circular.

TYPE SPECIES: *Aeschynomene aspera* L.

REFERENCE: V. Rudd, Contr. U. S. Natl. Herb. **32**: 1-172. 1955.

A genus of 150 species, the majority in New World and Africa.

KEY TO THE SPECIES

1. Stipules peltate, appendiculate below the point of attachment; calyx bilabiate, the lower lip 2-toothed, the upper 3-toothed.
 2. Leaflets 2-several costate.
 3. Ovary and fruit glabrous to puberulent, mature fruit usually muricate near the center of the articles, clearly articulated *A. americana*
 3. Ovary villose, fruit hispid with yellow glandular hairs; fruit without murications, articulation weak *A. villosa*
 2. Leaflets 1-costate.
 4. Fruit blackening on drying; calyx lobes entire *A. sensitiva*
 4. Fruit green, brown or straw colored on drying; calyx lobes indented *A. evenia*
1. Stipules attached at base, not peltate; calyx campanulate with 5 subequal lobes *A. viscidula*

Aeschynomene americana L., Sp. Pl. **2**: 713. 1753.

Type: Jamaica, Sloane, Voy. Jamaica t. 118, f. 3. Typotype, Herb. Sloane **3**: 90 (BM).

Syn.: *Aeschynomene americana* L. var. *glandulosa* (Poir.) Rudd, Contr. U. S. Natl. Herb. **32**: 26. 1955.

Aeschynomene glandulosa Poir. in Lam., Encycl. Suppl. **4**: 76. 1816. (Type: Puerto Rico, Ledru.)

Aeschynomene americana L. var. *depila* Millsp., Publ. Field Columbian Mus., Bot. Ser. 1: 494. 1902. (Type: St. Croix, L. Ricksecker 44.)

Stems erect, to 2 m tall, subglabrous to hispid. Stipules 10-25 mm long, 1-4 mm wide, usually ciliate; leaves 2-7 cm long, 20-60 foliolate; leaflets oblong, 4-15 mm long, 1-2 mm wide. Inflorescence few flowered; calyx 3-6 mm long; corolla 5-10 mm long. Fruit 3-9-articulate, articles 2.5-5 mm wide, 3-6 mm long, glabrous to puberulent; seeds 2-3 mm long, 1.5-2 mm wide, dark brown.

GENERAL DISTRIBUTION: United States, Mexico, Central America, Greater Antilles, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

Aeschynomene evenia C. Wright in Sauvalle, Anale, Acad. Ci. Méd. Habana 5: 334. 1869.

Type: Cuba, Wright s.n. (holotype, GH).

Stems to 1 m, sparsely hispidulous, often glabrate. stipules 5-15 mm long, 1.5-3 mm wide, subentire to serrate and ciliate, acute, lower portion rounded auriculate; leaves 2-4 cm long, 16-50-foliolate, petioles and rachis hispidulous; leaflets oblong, 2-9 mm long, 1-2 mm wide, entire to serrate and ciliate. Flowers with calyx 4-5 mm long, corolla 5-7 mm long. Fruit 5-14-articulate, stipe 3-4 mm long, subglabrous to hispidulous, articles 2.5-3.5 mm dia., one margin subentire, the other subcrenate; seeds 2 mm long, 1.5 mm wide, brown.

GENERAL DISTRIBUTION: United States, Cuba, Hispaniola, Jamaica, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Lucia!.

Aeschynomene sensitiva Sw., Prodr. 107. 1788.

FIGURE 165.

Stem to 40 cm high, glabrous or glabrate. Stipules 5-20 mm long, 1.5-5 mm wide, upper portion acute to acuminate, lower portion truncate and erose; leaves 2-10 cm long, 10-40 foliolate; petiole and rachis hispidulous; leaflets oblong 4-15 mm long, 1.5-3 mm wide. Calyx 4-8 mm long, ciliate; corolla 5-9 mm long. Fruit 4-12-articulate, stipes 4-8 mm long, articles 5-7 mm long, 4-7 mm wide, glabrate, smooth to verrucose, upper margin entire, lower crenate; seeds 3-4 mm long, 2.5-3 mm wide, brown.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

Aeschynomene villosa Poir. in Lam., Encycl. Suppl. 4: 76. 1816.

Type: Puerto Rico, Ledru.

Syn.: *Aeschynomene americana* L. var. *villosa* (Poir.) Urban, Symb. Antill. 4: 288. 1905.

Stems to 1 m long, prostrate to weakly ascending, hispid. Stipules 10-15 mm



FIGURE 165 (upper left). *Aeschynomene sensitiva*, x 0.35. FIGURE 166 (upper right). *Alysicarpus vaginalis*, x 0.35. FIGURE 167 (lower left). *Canavalia campylocarpa*, x 0.35. FIGURE 168 (lower right). *Crotalaria zanzibarica*, x 0.35.

long, 1-1.5 mm wide, subglabrous, ciliate. Leaves 2-7 cm long, 20-50 foliolate; leaflets oblong, 3-15 mm long, 1-3 mm wide. Inflorescence 3-10-flowered; calyx 2-4 mm long; corolla 3-9 mm long. Fruit 3-7-seeded, articulations distinct or lacking, articles 2.5-3 mm dia., villous-hispid; seeds 2-2.5 mm long, 1.5-2 mm wide, blackish.

GENERAL DISTRIBUTION: United States, Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe!, Martinique!.

Aeschynomene viscidula Michx., Fl. Bor.-Amer. 2: 74. 1803.

Type: United States, *Michaux.*

Stems prostrate to 1 m long, viscidulous-pubescent with crisp as well as glandular hairs. Stipules deltoid-ovate, 2-4 mm long, 1.5-2 mm wide, hispidulous to glabrate, ciliate; leaves to 2.5 cm long, 5-9-foliolate, petioles and rachis pubescent; leaflets oblong 4-10 mm long, 3-7 mm wide, costa subcentral, upper surface pubescent. Inflorescence 1-8-flowered; calyx 2.5-3.5 mm long, hispidulous-ciliate; corolla 5-7. Legume 2-3-articulate, stipe 1-3 mm long, subglabrous; articles 3.5-4 mm dia., densely white-tomentulose, with glandular hairs; seeds 2.5-3 mm long, 2 mm wide.

GENERAL DISTRIBUTION: United States, Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Once collected on Guadeloupe (*Duss 3923*).

ALYSICARPUS Desv.

Alysicarpus Desvaux, J. Bot. Agric. 2, 1: 120. 1813, nom. cons.

Herbs. Stipules scarious, free or connate; stipels present or wanting; leaves usually 1-foliate. Inflorescence short axillary or terminal racemes; calyx 4- or 5-parted, the lobes striate, the upper 2 partly united; standard petiole orbicular, clawed, wings oblong, adnate to keel, keel slightly incurved, obtuse; stamens 10, diadelphous; ovary subsessile, style filiform with incurved apex, stigmas capitate. Pod subterete, articulate, the articles indehiscent, 1-seeded; seed subglobose, exarillate.

TYPE SPECIES: *Hedysarum bupleurifolium* L. = *Alysicarpus bupleurifolius* (L.) DC., type cons.

About 116 species in the Old World tropics; one species naturalized in the New World. Gooding et al. (1965) report *Alysicarpus heyneanus* Wight & Arn. and *Alysicarpus glumaceus* (Vahl) DC. were cultivated but not yet naturalized at the Codrington Experimental Station in Barbados. No herbarium specimens are available.

Alysicarpus vaginalis (L.) DC., Prodr. 2: 353. 1825.

FIGURE 166 .

Basionym: *Hedysarum vaginale* L., Sp. Pl. 2: 746. 1753.

Type: Ceylon, Hermann, Herb. Herm. 1: 27, 59 (BM).

Syn.: *Alysicarpus nummularifolius* (L.) DC., Prodr. 2: 353. 1825.

Alysicarpus vaginalis (L.) DC. var. *typicus* King, Mat. Fl. Malay Penins. 3: 133. 1897.

Perennial herb, branched and spreading, stems tough. Stipules scarious, lanceolate, 4-6 mm long, acuminate; petioles 1 cm long; lower leaflets orbicular to oval, 5-12 mm long, upper leaflets oblong to lanceolate 1-3.5 cm long, glabrous or sparingly pubescent. Racemes 1-3 cm long; pedicels short, 2 mm long; calyx 4-5 mm long; corolla slightly longer, violet to pink. Fruit 1-2 cm long, 2-8 articulate, wrinkled, articles puberulent, 2-2.5 mm long; seeds 1 mm long.

GENERAL DISTRIBUTION: Native of tropical Asia naturalized in the New World.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Guadeloupe!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

ANDIRA A. L. Juss.

Andira A. L. Juss., Gen. Pl. 363. 1789, nom. cons.

Trees. Stipules small, caducous; leaves alternate, pinnately compound, leaflets opposite or alternate. Inflorescence paniculate, axillary or terminal; flowers pink, purple or violet; calyx subcampanulate, truncate or minutely 5-toothed; standard orbicular, wings oblong, obtuse, keel petals similar to the wings; stamens diadelphous, ovary stipitate, style short, incurved, stigma terminal. Fruit globose to obovoid, fleshy, indehiscent; seed 1.

TYPE SPECIES: *Andira racemosa* Lam. ex J. St. Hilaire.

REFERENCE: Taxon 8: 295. 1959.

KEY TO THE SPECIES

- Flowers short pedicellate or subsessile; corolla standard < 1 cm or 2 × calyx *A. inermis*
Flowering pedicels to 5 mm long; corolla standard > 1.5 cm or 3 × calyx *A. sapindoides*

Andira inermis (Wright) Kunth ex DC., Prodr. 2: 475. 1825.

Basionym: *Geoffroya inermis* Wright, Philos. Trans. 62: 513, t. x. 1777. (n.v.)

Type: *ibid* t. x.

Syn.: *Geoffraea jamaicensis* Wright, Philos. Trans. 62: 512, t. x. 1777. (n.v.) (Type: *ibid* t. x.)

Andira jamaicensis (Wright) Urban, Symb. Antill. 4: 298. 1905.

Tree 6-15 m tall. Stipules subulate, 3 mm long, caducous; leaves to 40 cm long, leaflets 7-13, oblong, 5-11 cm long, 2.5-4 cm wide, apex acuminate, base obtuse, glabrous. Panicle many-flowered, as long as the leaves, axes with brown tomentum; pedicels short or flowers subsessile, calyx dark purple or brown, to

3 mm long; corolla red-pink to purple, standard < 1 cm long. Fruit stalked, ellipsoid or subglobose, 3.5 cm long, 2-4 cm dia., dark green to purple.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, Trinidad, Tobago, northern South America to Bolivia.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, Guadeloupe!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: L'angélin, jumbie bead, West Indian walnut, sarinette, dédéfouden, caconnier rouge, anndjélin.

Andira sapindoides (DC.) Benth. J. Linn. Soc., Bot. 4, suppl. 123. 1860.

FIGURE 169.

Basionym: *Pterocarpus sapindoides* DC., Prodr. 2: 419. 1825.

Type: Amer. merid., Bertero.

Syn.: *Andira inermis* (Wright) Kunth ex DC. var. *sapindoides* (DC.) Griseb., Fl. Brit. W. Indian Is. 202. 1860.

Andira jamaicensis (Wright) Urban var. *sapindoides* (DC.) Stehlé, Bull. Mus. Hist. Nat. (Paris) 2, 18: 116. 1946.

Tree < 20 m. Stipules subulate, 1 cm long; leaves 15-30 cm long, leaflets 9-11, oblong, 7.5-12 cm long, 3-3.5 cm wide, apex long acuminate, base rounded, glabrous but lighter in color below. Inflorescence axillary, panicles as long as the leaves, axes brown tomentose; pedicels < 5 mm, calyx campanulate < 5 mm long, 5 mm dia., dark brown; corolla pink-purple, standard 1.5 cm long. Fruit subglobose, 4 cm dia.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.

COMMON NAME: Angelin.

ARACHIS L.

Arachis L., Sp. Pl. 2: 741. 1753.

Annual or perennial erect or spreading herbs. Stipules membranous, partly attached to petiole, persistent; leaves with 4 leaflets in 2 pairs. Flowers sessile, solitary or in short dense axillary spikes, bracts with 2 points; receptacle long and filiform; calyx 5-lobed, the upper 4 united, the lowest nearly free; corolla yellow, striped with red; stamens 8-10, all joined, alternating anthers basifixed and versatile; ovary subsessile, style long, filiform, stigma minute. Fruit oblong 1-6 seeded, constricted between the seeds but not with septae, indehiscent, walls reticulate, developing below the soil surface by elongation of the gynophore; seeds ovoid or oblong.

TYPE SPECIES: *Arachis hypogaea* L.

A genus of 15 species native to Brazil and Paraguay.

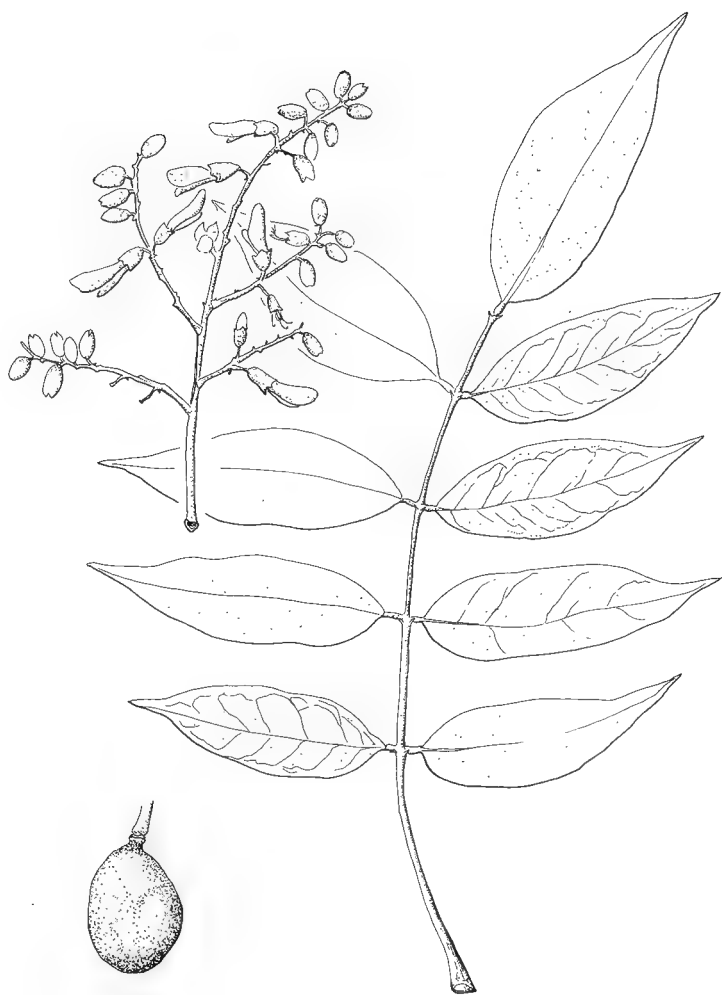


FIGURE 169. *Andira sapindoides*, x 0.5.

Arachis hypogaea L., Sp. Pl. 2: 741. 1753.

FIGURE 170.

Type: Uncertain.

Cultivated as an annual herb with spreading stems. Stipules 1.5-5 cm long, linear-lanceolate, acute, petioles 1.5-7 cm long, blades obovate to elliptic, 1-7 cm long, 0.7-3.2 wide, apex rounded, emarginate or mucronulate, base narrowed, glabrous or sparsely pilose. Flowers axillary, solitary, "stalk" or receptacle 0.2-4 cm long; corolla yellow with red nerves, 0.8-1.2 cm long. Pods 2-6 cm long, 1-1.5 cm thick; seeds ovoid, 1-2 cm long.

GENERAL DISTRIBUTION: Cultivated in tropical countries.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, Montserrat!, Guadeloupe!, Dominica, Martinique!, St. Vincent!, Grenada, Barbados.

COMMON NAMES: Peanut, ground nut, pistach.

NOTE: Several varieties are cultivated in the Lesser Antilles judging from the fruit types and seed sizes available in local markets. Very poorly represented by adequate herbarium specimens. Plants appear to persist in abandoned garden plots.



FIGURE 170 (left). *Arachis hypogaea*, x 0.35. FIGURE 171 (right). *Calopogonium mucunoides*, x 0.35.



FIGURE 172. *Cajanus cajan*, x 0.45.

CAJANUS DC.

Cajanus DC., Cat. Pl. Horti. Monsp. 85. 1813, nom. cons.

Shrubs. Stipules persistent; leaves 3 leaflets, pinnately compound, covered with small yellow glands. Flowers in axillary and terminal racemes; calyx 5-lobed, upper 2 teeth joined in bifid lobe; standard auriculate; stamens diadelphous; ovary sessile, elongate, pubescent, ovules 4-7, style thickened above, flattened below the capitate stigma. Legume linear-oblong, beaked, dehiscent; seeds 3-7, rounded and compressed, separated by oblique grooves across the valves.

TYPE SPECIES: *Cytisus cajan* L. = *Cajanus cajan* (L.) Huth.

A genus of 2 or 3 species, one now widely cultivated and naturalized.

Cajanus cajan (L.) Huth, Helios **11**: 133. 1893; Nicolson, Taxon **24**: 390. 1975. FIGURE 172.

Basionym: *Cytisus cajan* L., Sp. Pl. **2**: 739. 1753.

Lectotype: Hermann herb. **1**: 14, p. 128 #279 (BM).

Syn.: *Cajanus indicus* Sprengel, Syst. Veg. **3**: 248. 1826, nom. illeg.

Perennial erect shrub to 4 m tall, with golden or silky pubescence. Stipules ovate > 3 mm, acuminate, pubescent; petiole 1-5.5 cm long; leaflets elliptic to lanceolate, 2.5-10 cm long, 1.5-3.5 cm wide, apex acute, base cuneate, silvery gray-green below, densely covered with golden glands and whitish hairs. Peduncles 2-7 cm long; calyx fulvous and glandular; standard deep glossy red-brown outside, yellow inside sometimes with red veins, wings yellow, keel yellow-green, 1.2-1.7 cm dia. Fruit straight, 4.5-10 cm long, 0.8-1.4 cm wide, yellow or green, striped with dark red or purplish black, hairy and glandular; seeds compressed globose, 6-6.5 mm long, 4.5-5.5 mm wide, minutely shallowly pitted, buff, cream or reddish brown or variegated.

GENERAL DISTRIBUTION: Assumed to have originated in Africa and to have become widely distributed in historic times. Although the plant was early established in the Antilles, Alexander Anderson stated that Sir Joseph Banks sent several superior varieties to St. Vincent in 1787.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Pigeon pea, pigeon pea bush, pois d'angle, pwa angle.

CALOPOGONIUM Desv.

Calopogonium Desv., Ann. Sci. Nat. Bot. **9**: 423. 1826.

Herbaceous twining vine. Stipules scalelike, caducous; leaves with 3 pinnately arranged leaflets. Flowers in short to long axillary nodose racemelike clusters; calyx campanulate or tubular, 5-lobed, upper pair of lobes joined to form a bifid

lip; corolla blue or violet, standard with inflexed auricles; stamens diadelphous, ovary sessile, style filiform or subulate, glabrous or pubescent, stigmas capitate, ovules many. Fruit linear or linear-oblong, compressed, dehiscent by 2 valves, septate between the seeds, the outer surface of the valves transversely furrowed.

TYPE SPECIES: *Calopogonium mucunoides* Desv.

A genus of 6-8 species of the American tropics and subtropics.

KEY TO THE SPECIES

- Calyx, stems and fruits covered with rusty spreading hairs 2-3 mm long; fruits 2-4.5 cm long, 3.5-5 mm wide *C. mucunoides*
Calyx, stems and fruits with adpressed rusty hairs or, if spreading on stems, then shorter; fruits 4-6 cm long, 8-9 mm wide *C. caeruleum*

Calopogonium caeruleum (Bentham) Hemsley, Biol. Cent.-Amer., Bot. 1: 301. 1880.

Basionym: *Stenolobium caeruleum* Bentham, Ann. Weiner Mus. Naturgesch. 2: 125. 1838.

Type: Brazil, syntypes cited.

Climbing plant with adpressed ferruginous hairs on stems, petioles and peduncles. Stipules caducous; stipels glandular; petioles 2.5-14 cm long, middle leaflet rhomboid, the laterals asymmetrically ovate, 5-14 cm long, 2.4-11 cm wide, apex acute, base obtuse, rounded or truncate, densely appressed pubescent on both surfaces. Flowers several at each node of a spaced many-flowered false raceme to 22 cm long; peduncle 5 cm long; calyx 5 mm long, pubescent with ferruginous hairs, teeth narrowly triangular; corolla blue or purple, about 1 cm long. Fruit oblong, 4-6 cm long, 8-9 mm wide, straight, adpressed pubescent, transversely grooved between the 4-8 seeds; seed oblong, 4-6 mm long, red when fresh, drying dark brown, shiny.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!.

NOTE: Vélez's several records from the Lesser Antilles cannot be verified.

Calopogonium mucunoides Desv., Ann. Sci. Nat. Bot. 9: 423. 1826.

FIGURE 171.

Type: Guiana. No collector specified.

Syn.: *Calopogonium orthocarpum* Urban, Symb. Antill. 1: 327. 1899. (Type: Puerto Rico. Not designated.)

Twining, trailing herb with stems several meters long, covered with spreading rusty hairs. Stipules ovate-lanceolate, 4 mm long; petioles 2-16 cm long; leaflets elliptic, ovate or rhomboid-ovate, 1.5-16 cm long, 1.3-11.5 cm wide, apex obtuse to subacute and apiculate; base rounded; lateral leaflets oblique, pubescent on both surfaces. Inflorescence 1-10 cm long, peduncle 1-17 cm, flowers in clusters

of about 6 or single, the clusters widely separated; calyx teeth subulate, upper twice the length of the tube, lower 3 mm long; standard purple, violet or pale blue, the base with a purple zone surrounding a yellow area. Fruit linear-oblong, 2-4.5 cm long, 3.5-5 mm wide, straight or curved, rusty pubescent; seeds 8, oblong, 2.5-3.7 mm long, 2.5-3 mm wide, dark brown or yellowish.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAME: Wild ground nut.

CANAVALIA DC.

Canavalia DC., Prodr. 2: 403. 1825, nom. & orth. cons.

Slender to stout vines, trailing or climbing. Stipules small, caducous, sometimes spurred or swollen below; leaves alternate, pinnately trifoliate, lateral leaflets usually asymmetrical. Inflorescences axillary, racemose, thyrsoid, nodes swollen each with 2-6 flowers; flowers purple-violet to rose or whitish, each with 2 caducous bracts, commonly resupinate; calyx tubular at the base, bilabiate, the lower lobe with 3 teeth, the upper bilobed; standard obovate with a pair of callosities along the midvein, reflexed, auriculate, wing free, narrow, ligulate, obtuse, auricles at base above the claw, keel incurved, obtuse or beaked, often twisted; stamens monadelphous; ovary sessile, puberulent, style glabrous, filiform, slightly curved, stigma capitate. Fruit linear to oblong, the sides parallel or slightly to strongly curved, flattened or inflated, indehiscent or dehiscent, sometimes explosively so, 2-valved, the valves coriaceous, longitudinally ribbed along both sutures and one additional rib close to the ventral rib; seeds usually 4-15, oblong to elliptic, compressed, hilum linear.

TYPE SPECIES: *Dolichos ensiformis* L. = *Canavalia ensiformis* (L.) DC.

REFERENCE: J. Sauer, Brittonia 16: 106-181. 1964.

A genus of 50 species, mostly American. With the exception of *C. rosea* the genus has been poorly represented by adequate herbarium collections from the Lesser Antilles. Many of the following records are based on specimens presumably from cultivated plants.

KEY TO THE SPECIES

1. Leaflets nearly orbicular, emarginate, upper calyx lobe much shorter than the tube; pods tan, 10-15 cm x 2.5-5 cm; seeds brown, 18 x 13 x 10 mm; beach species *C. rosea*

1. Leaflets ovate to lanceolate or elliptic, not emarginate; upper calyx lip nearly equalling the tube.
2. Leaflets obtuse to acute, or if slightly acuminate, hilum less than half as long as seed.
3. Lowest calyx tooth exceeding the laterals; hilum definitely shorter than seed.
 4. Leaflets nearly glabrous; pods tan, 35-40 cm long, 2.5-4 cm wide, seeds ivory white with brown hilum, 21 x 15 x 10 mm *C. ensiformis*
 4. Leaflets moderately to densely pubescent beneath; pods 15-20 cm long, 2.5-3 cm wide; seeds olive brown to reddish brown, 18 x 12 x 9 mm *C. brasiliensis*
3. Lowest calyx tooth not exceeding laterals; hilum nearly as long as seed; leaflets lanceolate-elliptic; pods brown, 20 cm long, often strongly curved, 3.5 cm wide; seeds dark brown with black marbling, 22 x 14 x 12 mm *C. campylocarpa*
2. Leaflets strongly acuminate, or if slightly acuminate, hilum more than half as long as seed; calyx more than 10 mm long; corolla 2.5-3.5 cm long.
 5. Leaflets long acuminate, to an acute tip; calyx at least 15 mm long, pods light brown, 40 cm or more long, over 3.5 cm wide, seeds red-brown or white, 35 x 20 x 14 mm; hilum 20 mm *C. gladiata*
 5. Leaflets abruptly acuminate to an obtuse tip, calyx less than 15 mm long; pods pale brown, 17 cm long, 3 cm wide; seeds brown or reddish brown with black markings, 20 x 12 x 10 mm; hilum 11 mm *C. virosa*

Canavalia brasiliensis C. Martius ex Benth, Ann. Wiener Mus. Naturgesch. **2**: 135. 1837.

Lectotype: Brazil, Martius (w).

Syn.: *Canavalia caribaea* Urban, Symb. Antill. **7**: 232. 1912. (Type: Trinidad, Eggers 5705.)

Leaflets commonly to 13 cm long, 7 cm wide, chartaceous, broadly ovate, apex acute to obtuse, pubescence white or tan; calyx 12 mm long, pubescent, upper lip as long as tube, upper edge constricted behind apiculate tip; lowest tooth 2.5 mm long, subulate, exceeding the acute laterals; standard 2.25 cm. Pod brown, slightly compressed, spirally dehiscent, 20 cm long, 2.5 cm wide, each valve with sutural ribs and an extra rib 6 mm from ventral; seeds oblong, 18 x 12 x 9 mm, moderately compressed, olive brown or reddish brown often with dark marbling.

GENERAL DISTRIBUTION: United States, Mexico, Central America, Greater Antilles, Trinidad, Tobago, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts, Antigua!, Martinique!, St. Vincent!, Barbados.

COMMON NAME: Barbicou bean.

Canavalia campylocarpa Piper, Proc. Biol. Soc. Wash. **30**: 175. 1917.

FIGURE 167.

Type: *Piper SPI 37722* (US), from seeds sent by Bovell from Barbados.

Syn.: *Canavalia dictyota* Piper, Contr. U. S. Natl. Herb. **20**: 574. 1925. (Type: British Guiana, Jenman 4211.)

Leaflets narrowly lanceolate-elliptic, 11-13 cm long, 4.5-6 cm wide, apex short acute, coriaceous, pubescence white; calyx 13 mm long, pubescent, upper lip shorter than tube, upper edge constricted behind nonapiculate tip, lowest tooth 2 mm long, slightly subulate, equalling the obtuse laterals; standards 3 cm long. Pod often strongly curved, bright yellow when fresh, drying dark brown, 20 x 3.5 cm compressed, spirally dehiscent, brown, each valve with sutural ribs and an extra rib 5 mm from the ventral; seeds 22 x 14 x 12 mm, oblong, moderately compressed, dark brown with blackish marbling.

GENERAL DISTRIBUTION: United States, Hispaniola, Panama, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAME: Bwa agoul.

NOTE: Sauer (l.c. 144) placed *Canavalia campylocarpa* Piper in the synonymy of *C. brasiliensis*. Recent material suggests it is instead the same as *C. dictyota* and being older replaces that name with the accepted epithet most appropriate for the strongly curved pods, also distinctive in their bright yellow color.

***Canavalia ensiformis* (L.) DC., Prodr. 2: 404. 1825.**

Basionym: *Dolichos ensiformis* L., Sp. Pl. 2: 725. 1753.

Lectotype: Jamaica, Sloane (Voy. Jamaica t. 114, f. 1, 2, 3; typotype, Sloane Herb. 3, 67. BM).

Leaflets ovate-elliptic, to 20 cm long, with short acute tip, slightly coriaceous, pubescence white, sparse. Calyx 14 mm long, upper lip as long as tube, abruptly constricted behind apiculate tip, lowest tooth 2.5 mm long, subulate, exceeding the acute laterals; standard 2.75 cm long. Pod 30 x 3.5 cm, slightly compressed or inflated, spirally dehiscent, pale tan, each valve with sutural ribs and an extra rib 5 mm from ventral rib. Seeds oblong, 21 x 15 x 10 mm, moderately compressed, ivory or white with brown mark near hilum.

GENERAL DISTRIBUTION: United States, Central America, Greater Antilles, South America, Asia, Africa.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique, St. Lucia, Grenada!, Barbados.

COMMON NAMES: Horse bean, Cuttas bean, pois cochon, pwa kochon.

***Canavalia gladiata* (Jacq.) DC., Prodr. 2: 404. 1825.**

Basionym: *Dolichos gladiatus* Jacq., Collectanea 2: 276. 1788.

Type: Material cultivated in Vienna (lectotype: Jacq., Icon. Pl. Rar. 3: t. 560; typotype, BM).

Leaflets ovate, 8 cm long, 5.5 cm wide, apex acuminate to long acute tip, pubescence white, sparse. Calyx 16 mm long, nearly glabrous, upper lip as long as tube, upper edge constricted behind nonapiculate tip, lowest tooth 2 mm long, slightly subulate, equalling the obtuse laterals; standard 3.5 cm long. Pod 40 x 5 cm, somewhat compressed, spirally dehiscent, light brown, each valve with sutural ribs and an extra rib 4 mm from ventral, seeds oblong-elliptic, 35

x 20 x 14 mm, moderately compressed, usually red or reddish brown, rarely white.

GENERAL DISTRIBUTION: United States, Central America, South America, Asia, Africa.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe (cultivated).

Canavalia rosea (Sw.) DC., Prodr. 2: 404. 1825.

Basionym: *Dolichos roseus* Sw., Prodr. 105. 1788.

Type: Jamaica, Browne, Civ. Nat. Hist. Jamaica 293. 1756.

Syn.: *Canavalia maritima* Thouars, J. Bot. Agric. 1: 80. 1813. (Type: Plukenet, Phytographia t. 51, f. 2. 1691.)

Dolichos maritimus Aublet, Hist. Pl. Guiane 765. 1775. (Type: "Plumier Mss. 99 t. 2.")

Canavalia maritima (Aublet) Urban, Repert. Spec. Nov. Regni Veg. 15: 400. 1919.

Canavalia obtusifolia (Lam.) DC., Prodr. 2: 404. 1825.

Dolichos obtusifolius Lam., Encycl. 2: 295. 1786. (Type: Plukenet, Phytographia t. 51, f. 2. 1691 ex Sauer, but Santo Domingo, coll. unknown (P) ex Verdcourt.)

Dolichos rotundifolius Vahl, Symb. Bot. 2: 81. 1791. (Type: Ind. Occ., Herb. Vahl (C) ex Sauer, although Vahl cites Rheede, Hort. Malab. 8: 83, t. 43. 1688.)

Dolichos emarginatus Jacq., Pl. Hort. Schoenbr. 2: 50, t. 221. 1797. (Type: Cultivated vine of seeds from an unknown area, Jacq., Pl. Hort. Schoenbr. t. 221.)

Common coastal vine, crawling over sand; leaflets oblong to orbicular in outline, 9-10 cm long, 6-9 cm wide, apex obtuse to emarginate, minutely apiculate at tip, base broadly cuneate, pubescence white. Calyx 12 mm long, sparsely white pubescent, upper lip much shorter than tube, upper edge constricted behind nonapiculate tip, lowest tooth 2 mm long, acute, slightly exceeding the acute laterals; standard 3 cm long. Pod commonly 15 x 2.5 cm, spirally dehiscent, often explosively so, pale tan, each valve with sutural ribs about 3 mm from ventral; seeds elliptic, 18 x 13 x 10, slightly compressed, brown with darker marbling.

GENERAL DISTRIBUTION: United States, Bahamas, Mexico, Central America, Greater Antilles, Trinidad, South America, Asia, Africa.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Sea bean, beach bean.

REFERENCE: B. Verdcourt in J. B. Gillett et al., Fl. Trop. E. Afr. 4(2): 576. 1971.

NOTE: Sauer (l.c. 163) correctly stated, "Thouars did not cite Aublet," but continues, "perhaps a deliberate omission reflecting Aublet's notorious unpopularity, particularly on Mauritius, where both had spent some time." Sauer then accepted "*C. maritima* (Aubl.) Thouars" with the lectotype of Aublet's name an illustration by Plukenet. Aublet had cited Plumier; Thouars had cited Indian references only. Urban then made the combination using Aublet's name but later changed his mind and accepted *C. rosea* (Sw.) DC.

Canavalia virosa (Roxb.) Wight & Arn., Prodr. 253. 1834.

Basionym: *Dolichos virosus* Roxb., Fl. Ind. 3: 301. 1832.

Type: Rheede, Hort. Malab. 8: t. 45, not located by Sauer.

Leaflets broadly ovate, 12-13 cm long, 7-8 cm wide, base round, apex acuminate to a short blunt tip, chartaceous, pubescence medium long, white or tan; calyx 12 mm long, upper lip shorter than tube, upper edge constricted behind nonapiculate tip, lowest tooth 2 mm long, acute, equalling the obtuse laterals; standard 3 cm long. Pod commonly 17 x 3 cm, compressed, spirally dehiscent, pale brown; sutural ribs and an extra rib 4 mm from ventral; seeds 20 x 12 x 10 mm, oblong-elliptic, moderately compressed, brown or reddish brown with black marbling.

GENERAL DISTRIBUTION: Africa, India.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe (cultivated).

CENTROSEMA Bentham

Centrosema Bentham, Comm. Legum. Gen. 53. 1837, nom. cons.

Syn.: *Bradburya* Raf., Fl. Ludov. 104. 1817. Type: *Bradburya scandens* Raf.

Twining herbs, prostrate or ascending. Stipules persistent, not produced below attachment; leaves pinnately 3-foliolate, entire. Flowers large, axillary, pedunculate, the peduncles often enlarged at insertion of the pedicel, bracteoles adpressed to the calyx, calyx campanulate, lobes subequal or the lower longer; standard orbicular, short-spurred on the back near the base, clawed; wings obovate; keel broad and incurved; stamens 10, vexillary stamen free or somewhat connate; ovary sessile, style incurved, flattened, bearded around the terminal capitate stigma. Legume linear, compressed, dehiscent with two twisting valves, sutures thickened, with ribs at or near the margin; seeds subglobose or oblong, shortly arillate, hilum small.

TYPE SPECIES: *Clitoria brasiliana* L. = *Centrosema brasilianum* (L.) Bentham, type cons.

An American genus of about 45 species, commonly used in other tropical areas as an excellent forage plant.

KEY TO THE SPECIES

1. Pod 1.2-1.6 cm wide, margins broad, with 4 narrow wings; bracteoles twice as long as calyx; flowers 4-5 cm long; leaflets 7-14 cm long; foliage darkening on drying *C. plumieri*
1. Pod less than 1 cm wide, margins of pod narrow; bractlets as long as calyx or shorter; flowers 2-4 cm long, leaflets 3-7 cm long, foliage not blackening on drying.
 2. Pod 10-20 cm long, 5-7 mm wide; with 4 raised ribs, calyx teeth unequal; foliage soft and velvety pubescent; seeds 4-5 mm long *C. pubescens*
 2. Pod 6-12 cm long, to 4 mm wide; calyx teeth nearly equal; foliage glabrous or sparsely pubescent *C. virginianum*

Centrosema plumieri (Pers.) Bentham, Comm. Legum. Gen. 54. 1837.

Basionym: *Clitoria plumieri* Turpin ex Pers., Syn. Pl. 1: 303. 1805.

Type: Santo Domingo, *Turpin*.

Stems woody at the base, trailing or climbing, to 2 m long, often corky ridged, glabrous except for buds. Stipules ovate 8-11 mm long, 4-5 mm wide, acute, striate; leaflets ovate, oblong, to rhombic-ovate 4-12 cm long, 1.2-12 cm wide, apex short acuminate, base obtuse, glabrous or petiolules pubescent. Peduncles 2-6-flowered, mostly shorter than petioles; bracteoles ovate-oblong, 1.2 cm long, 1 cm wide, obtuse, striate; calyx 6-7 mm long, teeth shorter than tube, almost truncate; standard white with purple center, 4-5 cm broad, wings white with purple tips. Legume 10-15 cm long, 1.2-1.6 cm wide, beak persistent, to 2.5 cm long, winglike ribs 3-4 mm from margins; seeds oval 7-10 mm long, reddish brown.

GENERAL DISTRIBUTION: Mexico, Central America, South America, and cultivated in Africa and Asia.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!

Centrosema pubescens Benth. *Comm. Legum. Gen.* 55. 1837.

Type: Mexico, *Keule*, s.n. (holotype, M).

Twining or climbing stems to 4 m long, pubescent or glabrate. Stipules ovate-lanceolate, 2-4 mm long; leaflets ovate, elliptic to oblong, 4-7.5 cm long, 0.6-4.5 cm wide, apex acute to rounded, base rounded, reticulate-veined, pubescent at least on the veins below. Peduncles few-flowered, commonly longer than the petioles; bracteoles ovate, as long as calyx; upper calyx teeth as long as tube; standard 2-4 cm broad, white or yellowish on the back, inside purple to white with magenta stripes; wings lilac with purple at apex. Pod 10-20 cm long, 5-7 mm wide, raised ribs near margin, beak 10-14 mm long; seeds 18-22, 4-5 mm long, dark red-brown streaked with black.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Snake plant, cowitch.

Centrosema virginianum (L.) Benth. *Comm. Legum. Gen.* 56. 1837.

FIGURE 173.

Basionym: *Clitoria virginiana* L., *Sp. Pl.* 2: 753. 1753.

Type: *Clayton* s.n. (BM).

Syn.: *Centrosema virginianum* (L.) Benth. var. *genuinum* Stehlé & Quentin, *Fl. Guad.* 2(2): 108. 1948.

Centrosema virginianum (L.) Benth. var. *angustifolium* (DC.) Griseb., *Fl. Brit. W. Indian Is.* 193. 1860.

Clitoria virginiana L. var. *angustifolia* DC., *Prodr.* 2: 234. 1825. (Type: Not indicated.)

Stems twining, finely rough pubescent. Stipules linear, 2-3 mm long, acute; leaflets ovate, oblong-lanceolate or linear-lanceolate, 2.5-7 cm long, 0.5-2.5 cm wide, apex acute to acuminate, base rounded, reticulate-veined. Peduncles 1-2.5



FIGURE 173. *Centrosema virginianum*, x 0.5.

cm long, equalling the petioles, 1-4-flowered, bracteoles ovate, 5-7 mm long, acute, finely striate; calyx lobes linear, 6-9 mm long, tube 2-3 mm long, standard orbicular, 2 cm long, 3 cm wide, purple, violet to nearly white. Pod 10-13 cm long, 4 mm wide or less, ribs very close to the margin, beak to 1 cm long; seeds 2 mm long, 1.5 mm wide, dark brown to black.

GENERAL DISTRIBUTION: Southern United States, Mexico, Central America, Greater Antilles, South America and introduced elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Wild pea, butterfly pea, blue bell.

NOTE: This species tends to be extremely variable in leaf size and shape, often on one individual.

CHAETOCALYX DC.

Chaetocalyx DC., Prodr. 2: 243. 1825.

Herbaceous twining vines. Stipules deltoid to lanceolate, attached at the base; leaves imparipinnate, 5-17 foliolate. Inflorescences racemes, fascicles or flowers solitary, axillary or terminal; calyx campanulate with 5 subequal teeth or lobes, tube gibbose or symmetrical; standard obovate to suborbicular, yellow; wings oblong, keel straight; filaments united into a tube that commonly splits on vexillar side; ovary short stipitate, style incurved, stigma terminal. Fruit a 6-16-articulate loment, compressed or subterete; seeds reniform or oblong, reddish-brown.

LECTOTYPE SPECIES: *Glycine vincentina* Ker Gawler = *Chaetocalyx vincentina* (Ker Gawler) DC. = *Chaetocalyx scandens* (L.) Urban.

REFERENCE: V. Rudd, Contr. U. S. Natl. Herb. 32: 207-243. 1958.

A genus of 20 species of tropical America.

Chaetocalyx scandens (L.) Urban, Symb. Antill. 2: 292. 1900. FIGURE 174.

* Basionym: *Coronilla scandens* L., Sp. Pl. 2: 743. 1753.

Type: Plum., Nov. Pl. Amer. pl. 107, f. 3. 1703.

Syn.: *Glycine vincentina* Ker Gawler, Bot. Reg. pl. 799. 1824. (Type: *ibid.* pl. 799.)

Chaetocalyx vincentina (Ker Gawler) DC., Prodr. 2: 243. 1825.

Chaetocalyx scandens (L.) Urban var. *pubescens* (DC.) Rudd, Contr. U. S. Natl. Herb. 32: 236. 1958.

Chaetocalyx pubescens DC., Prodr. 2: 243. 1825. (Type: Santo Domingo, Bertero.)

Herbaceous or slightly woody, all parts glabrous to densely pubescent, usually with glandular hairs. Stipules deltoid to lanceolate, 2-5 mm long, 1-2 mm wide, acute to attenuate, entire to glandular-denticulate or laciniate; leaves 5-foliolate, 1-5 cm long, leaflets elliptic to obovate, 1-5 cm long, 0.5-2.5 cm wide, apex obtuse, retuse or mucronulate, base rounded or cuneate, glabrous to densely



FIGURE 174 (upper left). *Chaetocalyx scandens*, x 0.35. FIGURE 175 (upper right). *Christia vespertilionis*, x 0.35. FIGURE 176 (lower left). *Clitorea ternatea*, x 0.35. FIGURE 177 (lower right). *Cracca caribaea*, x 0.35.

pubescent. Inflorescence axillary, racemose or fascicled or flowers solitary; pedicels 8-30 mm long; calyx campanulate, tube 3-4 mm long, teeth 6-10 mm long, lanceolate to deltoid or subulate, unequal in length; standard to 12 mm long, 16 mm wide. Fruit subterete, 7-12-articulate, articles 8-10 mm long, 1-2 mm dia., longitudinally striate, pubescent to glabrous; seeds 5-6 mm long, 1 mm dia., dark reddish brown.

GENERAL DISTRIBUTION: Mexico, Hispaniola, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

NOTE: Rudd recognized the pubescent variety as occurring in St. Vincent and the Grenadines along with the typical glabrous to glabrate variety.

CHRISTIA Moench

Christia Moench, Suppl. Meth. 39. 1802.

Syn.: *Lourea* Necker ex Desv., J. Bot. Agric. 1: 122. 1813, not Necker ex J. St-Hilaire 1812.

Herbs. Stipules ovate to lanceolate, free, striate; leaflets 1, wider than long. Flowers in lax terminal and axillary racemes, bracts acuminate, caducous; calyx broadly campanulate, enlarged after flowering, lobes equal; standard obovate to obcordate, clawed; wings obliquely oblong, adherent to the keel; keel slightly incurved; stamens 10, diadelphous; ovary with 2-8 ovules, style subulate, curved, glabrous, stigma broadly capitate. Fruit subsessile or stipitate, constricted between the seeds, joints ovate, compressed or turgid, folded and within the calyx; seeds orbicular to subglobose.

TYPE SPECIES: *Christia lunata* Moench = *C. vespertilionis* (L. f.) Bakh. f.

A genus of 12 species of southeastern Asia and Australia.

Christia vespertilionis (L. f.) Bakh. f., Reinwardtia 6: 90. 1961. FIGURE 175.

Basionym: *Hedysarum vespertilionis* L. f., Suppl. 331. 1781.

Type: Indochina, *Loureiro*.

Syn.: *Lourea vespertilionis* (L. f.) Desv., J. Bot. Agric. 1: 122, p. 5, f. 18. 1813; Stehlé & Quentin, Fl. Guad. 2(2): 95. 1948.

Slender sparingly branched herb to 60 cm tall, stem puberulous with minute hooked hairs. Stipules lanceolate-subulate, early caducous; terminal leaf to 1.5 cm long, 3-8 cm broad, the lobes curved ascending or descending, purplish tinged with light colored veins, lateral leaflets small if present. Flowers single or paired in racemes to 12 cm long, pedicels 2-3 mm long; calyx inflated in fruit, to 11 mm long; standard 6 mm long, yellow to creamy white. Fruit 4-6-jointed, each article about 3 mm long, indehiscent; seed oblong, 2 x 1.5 mm, slightly compressed, light brown.

GENERAL DISTRIBUTION: Native of southeastern Asia introduced in Jamaica, Hispaniola and Trinidad.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts, Guadeloupe!, Martinique!, St. Vincent!.

NOTE: Plée noted on a sheet at Paris that this was introduced to the botanical garden at St. Pierre in 1820.

CLITORIA L.

Clitoria L., Sp. Pl. 2: 753. 1753.

Climbing or erect herbs or trees. Stipules persistent; leaves imparipinnately compound, leaflets 3-9 or rarely 1. Inflorescences axillary, few-flowered racemes or the flowers solitary or paired; bracteoles large; calyx tubular, 5-lobed, the upper pair joined at the base; corolla large, blue, white or red; standard rounded and retuse at the apex, wedge-shaped at base, often wrinkled, exceeding other petals; wings falcate-oblong, keel acute, incurved, shorter than the wings; stamens 10, diadelphous or all more or less fused; ovary stipitate; style elongate, curved, bearded inside at the slightly enlarged apex, stigma terminal. Pod linear-oblong, compressed, with soft tissue between the seeds; seeds subglobose or compressed.

LECTOTYPE SPECIES: *Clitoria ternatea* L.

A genus of 30-40 species, mainly American with one widespread in cultivation or naturalized.

NOTES: *Clitoria arborescens* Aiton was reported by Duss (p. 208) as cultivated in the St. Pierre Botanical Garden. A specimen *Caley* s.n. collected on St. Vincent in 1818 was surely from that botanic garden. Another specimen so identified by Stehlé (as #3533, collected in 1938) from the botanical garden, Fort-de-France, has been annotated by Fantz as *Clitoria javitensis* (Kunth) Benth with an unpublished combination as a variety and a new forma.

"*Clitoria pedunculata* Mich.," cited by Véléz (p. 99) as one of his own collections from St. Vincent, remains unidentified.

KEY TO THE SPECIES

1. Leaflets 4, 7 or 9; herbaceous vine; flowers deep blue, often double *C. ternatea*
1. Leaflets 3.
 2. Petiole 3-5 mm long; flowers 5-7 cm long, bluish lavender to pink; erect woody perennial *C. guianensis*
 2. Petiole 2.5-4.5 cm long; flowers 4-5 cm long, white, drying yellow; herbaceous vine *C. falcata*

Clitoria falcata Lam., Encycl. 2: 51. 1786.

Type: Santo Domingo, Plum., "Mss. tab. 85, t. 2."

Syn.: *Clitoria rubiginosa* Juss. ex Pers., Syn. Pl. 2: 303. 1807. (Type: Santo Domingo, no collector or collection cited.)

Clitoria glycinoides DC., Prodr. 2: 234. 1825. (Type: Guiana Gallica, Poiteau (K).)

Clitoria rubiginosa Juss. ex Pers. var. *genuina* Stehlé, Bull. Agric. Mart. 6: 259. 1937.

Clitoria rubiginosa Juss. ex Pers. var. *ecostata* (Urban) Stehlé, Bull. Agric. Mart. 6: 259. 1937. (Type: Duss 1075.)

Clitoria glycinoides DC. var. *ecostata* Urban in Duss, Fl. Phan. Antill. Franç. 208. 1897, nomen nudum.

Herbaceous vine, pubescence densely rufo-pilose. Stipules persistent, broadly ovate 3-5 mm long, 3-3.5 mm wide, acute; petiole 2.5-4 cm long; leaflets 3, oblong-elliptic to ovate, 3.5-7 cm long, 1.5-5 cm wide, apex obtuse, retuse or mucronate, base rounded, dark green and glabrous above, pale and densely pilose below. Racemes axillary, with 2-4 flowers, pedicels 2-4 mm long; calyx tube 11-15 mm long, lobes ovate-lanceolate, long acuminate, 9-13 mm long; standard 4-5 cm long, 3-4 cm wide, lavender or white becoming yellow on drying; wings 14-17 mm long, clawed, exceeding the keel by 6-7 mm; keel falcate, 7-9 mm long. Fruit slightly curved, 3-4.5 cm long, 8-9 mm wide, weakly compressed, stipe 8-9 mm long; seeds 5-8, nearly square, 4.5 mm long, 4 mm wide, brown.

GENERAL DISTRIBUTION: Central America, Greater Antilles, South America, tropical Africa.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

Clitoria guianensis (Aublet) Benth, J. Linn. Soc., Bot. 2: 40. 1858.

Basionym: *Crotalaria guianensis* Aublet, Hist. Pl. Guiane 2: 761, t. 305. 1775.

Type: French Guiana, Aublet (P).

Plant woody at base, with stems to 1 m tall. Stipules ovate lanceolate, 5-11 mm long, 2-3 mm wide, acute; petioles 3-5 mm long; leaflets 3 or 1, oblong-lanceolate 5-14 cm long, 8-26 mm wide, apex acute or obtuse, mucronate, base cuneate. Inflorescence axillary of 2-flowered racemes; peduncles 0.5-3.5 cm long, exceeding the petiole; calyx tube 15-22 mm long, lobes oblong to ovate-lanceolate, 8-15 mm long, subequal; standard 5-7 cm long, 4.5-5.5 cm wide, bluish lavender, pink or white with prominent purple to yellow nerves; wings 21-27 mm long, clawed, exceeding the keel by 7-10 mm; keel falcate, 13-15 mm long. Fruit 3.5-5 cm long, 6-10 mm wide, stipe ca. 11-12 mm long, persistent style to 11 mm long; valves twisting, seeds 7-8 globose, 3-5 mm dia., dark reddish brown.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Martinique!. A Plée specimen (P!) possibly cultivated in the St. Pierre botanical garden.

Clitoria ternatea L., Sp. Pl. 2: 753. 1753.

FIGURE 176.

Type: Hort. Cliff. 360 (BM).

Herbaceous vine, rampant and profuse. Stipules persistent, linear 4 mm long, striate; petioles 1.5-3 cm long; leaflets 5 or 7, ovate to elliptic 1.5-4.5 cm long, 1-3.5 cm wide, apex retuse, mucronate, base cuneate to rounded. Inflorescence reduced to a single flower, peduncle 7-12 mm long, bracts 2 ovate, 2-3 mm long, 1 mm wide; pedicels 3-6 mm long; calyx tube 9-14 mm long, lobes oblong, 8-12 mm long, 3 mm wide at base, apically rounded; standard 3.5-5 cm long, 2.5-3 cm

wide, emarginate, blue to violet; wings similar in color, 26 mm long, 12 mm wide, exceeding the keel by 8-10 mm; keel falcate, 9 mm long, weakly curved at apex. Fruit subsessile, straight, brown to tan, 10-11 cm long, 9-11 cm thick, slightly thickened on both sutures; seeds 10 per pod, rectangular 5-6 mm long, 4 mm wide, 1.5-2 mm thick, color brown or black.

GENERAL DISTRIBUTION: Native of the Old World tropics widely established in the New World.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Martinique!, St. Vincent!, the Grenadines!, Barbados!.

COMMON NAMES: Blue pea, butterfly pea.

NOTES: A double-flowered form is known in cultivation on several islands. Variation on the normal dark blue has been seen ranging from a red-purple to pale, almost white. Fantz has annotated sheets of these with varietal and forma names, all unpublished at present.

CRACCA Benth

Cracca Benth *in* Benth & Oersted, Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn 8. 1853, nom. cons.

Syn.: *Benthamantha* Alef., Bonplandia 10: 264. 1862. Type: *Cracca glandulifera* Benth. = *Benthamantha glandulifera* (Benth.) Alef.

Perennial herb. Stipules subulate to setaceous; leaves imparipinnate, leaflets opposite. Inflorescence an axillary, few-flowered raceme; calyx campanulate, 5-cleft, lobes subequal; standard orbicular to reniform, clawed, without auricles; wings obovate-oblong; keel broad and curved; stamens diadelphous; ovary sessile, style incurved, pubescent on the upper part, inner side; stigma capitate. Legume linear, compressed, 2-valved, several-seeded, septate between the seeds, valves twisting; seeds quadrangular.

TYPE SPECIES: *Cracca glandulifera* Benth.

A genus of 10 species from southwestern United States to southern South America.

Cracca caribaea (Jacq.) Benth *in* Benth & Oersted, Vidensk. Meddel. Dansk Naturhist. Foren. Kjøbenhavn 9. 1853. FIGURE 177.

Basionym: *Galega caribaea* Jacq., Select. Stirp. Amer. Hist. 212. t. 125. 1763.

Type: Caribbean area, *ibid.* t. 125.

Syn.: *Benthamantha caribaea* (Jacq.) Kuntze, Revis. Gen. Pl. 3(3): 53. 1898.

Brittonamra caribaea Kuntze var. *grisebachiana* Kuntze, Revis. Gen. Pl. 1: 165. 1891. (Type: Puerto Rico, no collection or collector indicated.)

Brittonamra caribaea Kuntze var. *jacquiniana* Kuntze, Revis. Gen. Pl. 1: 165. 1891. (Type: No material or collector indicated.)

Cracca aniloides (Bello) Cook & Collins, Contr. U. S. Natl. Herb. 8: 128. 1903.

Tephrosia aniloides Bello, Anales Soc. Esp. Hist. Nat. 10: 258. 1881. (Type: Puerto Rico, Bello.)

Shrub or woody herb to 1.5 m high, branches strigose-canescens to glabrate. Stipules setaceous, 4-10 mm long, petioles 0.5-1.5 cm long; leaflets 9-18, opposite, elliptic 0.6-3 cm long, 6-9 mm wide, apex rounded to acute, mucronate, base rounded to cuneate, silky-strigose both sides. Racemes 4-6 cm long, 1-6-flowered; bracts subulate 3-5 mm long; calyx tube 2.5 mm long, lobes lanceolate-attenuate, 3 mm long; corolla white or yellowish, often lined with purple, standard 10-12 mm long, 8-12 mm wide, wings as long as standard, keel 12-13 mm long, 5 mm wide. Pod linear, 4-6 cm long, 2.5 mm wide, impressed between the seeds, finely pubescent; seeds 15-20 subquadrangular, 2 mm long, 1.5 mm wide, dark brown.

GENERAL DISTRIBUTION: Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, St. Eustatius!, Montserrat!, Guadeloupe!, Martinique!, St. Vincent!, the Grenadines!.

NOTES: This plant is commonly browsed by cattle and is then stunted and contorted. Plants also appear to flush regularly and have mature leaves and developing leaves of different sizes. Jacquin's illustration is of the smaller leaf type.

CROTALARIA L.

Crotalaria L., Sp. Pl. 2: 714. 1753.

Herbs or shrubs, stems terete or winged. Stipules present or absent, basally attached or auriculate or decurrent on the stem; leaves simple or 3-7-foliate. Inflorescence racemose, flowers yellow or blue, calyx 5-toothed, 2-lipped; standard orbicular, ovate or cordate; wings oblong or obovate; keel incurved; stamens 10, monodelphous, alternate anthers smaller, versatile, other elongated and basifixed; ovary sessile, 2-many-ovuled, style curved, bearded above and around stigma; stigma capitate. Pod oblong or globose, inflated, 2-valved, dehiscent or tardily so; seeds loose at maturity.

LECTOTYPE SPECIES: *Crotalaria lotifolia* L.

REFERENCES: H. A. Senn, *Rhodora* 41: 317-367. 1939. D. R. Windler, *Flora Neotropica Monograph* (in preparation).

A genus of 550 species of which 400 occur in Africa and perhaps 70 are native or established introductions in the New World. The following species have been tried in botanical gardens and are represented by older herbarium specimens but have not been recollected and apparently have not persisted.

CULTIVATED TAXA

Crotalaria berteriana DC., Prodr. 2: 127. 1825. Based on cultivated material from Guadeloupe collected by Bertero. Now known only from Jamaica in the West Indies.

Crotalaria bracteata Roxb. is represented by *Guilding s.n.* (K) probably from the St. Vincent Botanic Garden.

- Crotalaria intermedia* Kotschy. Alain Liogier (Phytologia **47**: 172, 173. 1980) reported this plant to be in Guadeloupe and Martinique.
- Crotalaria lanceolata* E. Meyer. Reported from Guadeloupe by Stehlé & Quentin (Fl. Guad. **2**(2): 87. 1948).
- Crotalaria linifolia* L. f., Cult. Martinique Herb. Richard. (P).
- Crotalaria pilosa* Miller. St. Vincent. Anderson reported that he obtained seeds of this plant from Trinidad for the St. Vincent Botanic Garden. Also known from Martinique, Plée s.n. (P).
- Crotalaria sericea* Retz. Véléz (p. 99) reported he collected this species on several islands of the Lesser Antilles. No material has been located.
- Crotalaria tetragona* Roxb. ex Andr. is recorded by Adams as on St. Vincent. A specimen Guilding s.n. (K) was probably from a plant in the St. Vincent Botanic Garden, which Anderson obtained from Roxburgh.

KEY TO THE SPECIES

1. Leaves all simple, unifoliate.
 2. Stipules decurrent on the stem *C. stipularia*
 2. Stipules not decurrent on the stem.
 3. Flowers blue, stems 4-angled, stipules large sickle-shaped; leaves broadly ovate *C. verrucosa*
 3. Flowers yellow or yellowish red, stems terete, leaves elliptic to oblong or linear.
 4. Calyx glabrous, stipules broad, ovate, bracts broadly ovate, persistent *C. spectabilis*
 4. Calyx more/less pubescent, stipules minute, setaceous; bracts linear or subulate.
 5. Calyx lobes broadly ovate, sparsely pale pubescent; leaves obovate, acute or obtuse *C. retusa*
 5. Calyx lobes linear to lanceolate, leaves oblong to linear *C. juncea*
 1. Leaves palmately 3-5-foliate.
 6. Leaves 5-foliate *C. quinquefolia*
 6. Leaves 3-foliate.
 7. Inflorescence axillary, shorter than the petiole; legume attenuated toward the base *C. lotifolia*
 7. Inflorescence terminal, subterminal or opposite the leaves, legume not attenuate at base.
 8. Legume densely tomentose with spreading hairs; leaves rounded or emarginate at the apex *C. incana*
 8. Legume adpressed pubescent, puberulent or glabrous.
 9. Calyx lobes about the length of the calyx tube.
 10. Leaflets 3.5-10 cm long; inflorescence elongated, 20-40 cm, keel rounded.
 11. Leaflets narrowly elliptic, apex acute and apiculate, ripe pods blackish *C. zanzibarica*
 11. Leaflets broadly elliptic to obovate, apex rounded and emarginate, ripe pods pale tan *C. pallida*
 10. Leaflets 0.7-3 cm long, inflorescence to 4 cm long, keel bent a sharp right angle *C. pumila*
 9. Calyx lobes considerably longer than calyx tube, leaves narrowly elliptic or lanceolate, 5-7 cm long *C. micans*

Crotalaria incana L., Sp. Pl. 2: 716. 1753.

Lectotype: Jamaica, Herb. Sloane, vol. 6, fol. 6 (BM).

Herbaceous annual or perennial, to 1.3 m high, parts densely pubescent. Stipules subulate, 5 mm long, caducous; petioles 2-8 cm long, leaflets 3, obovate, oval or ovate-orbicular, 2-5 cm long, 1.7-4 cm wide, apex obtuse and mucronulate or emarginate, base obtuse or narrowed, pubescent below. Racemes terminal, to 10 cm long, few-flowered, long-peduncled; calyx tube very short 2-3 mm long, lobes lanceolate, acuminate 7-9 mm long; corolla yellow or greenish yellow 10-13 mm long. Pods oblong, 2-3.5 cm long, 8-12 mm wide, pendant, inflated, pubescent; seeds about 30, reniform 3 x 3 mm, blue-green or yellow-brown.

GENERAL DISTRIBUTION: Widespread in tropical America, tropical Africa and other areas by naturalization.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Vincent!, Grenada!, Barbados.

COMMON NAME: Shack-shack.

Crotalaria juncea L., Sp. Pl. 2: 714. 1753.

Lectotype: "In India," Hort. Cliff., collector uncertain.

Erect annual herb to 2 m, stems ribbed, silky brown pubescent. Stipules minute, petioles 1-2 mm long, leaves simple, linear to linear-lanceolate or oblong-lanceolate, 4-10 (7.5-13) cm long, 5-10 mm (1.4-2.2 cm) wide, apex bluntly obtuse, mucronulate, base narrowed or rounded, pilose to velvety. Racemes terminal, 10-25 cm long, elongated, pedicels to 1 cm, calyx 1.5 cm long, deeply 5-parted, lobes linear-lanceolate, 1 cm long, with short and long brown hairs; petals bright yellow. Pods 3-4 cm long, 1 cm wide, brown pubescent; seeds ca. 12, cordiform, brown.

GENERAL DISTRIBUTION: Native of India used as a cover crop in many areas.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Martinique!, Barbados.

NOTE: Alexander Anderson reported he obtained seeds of this plant as Malabar hemp from Banks in 1786 to be a source of cordage.

Crotalaria lotifolia L., Sp. Pl. 2: 715. 1753.

Type: Jamaica.

Syn.: *Crotalaria lotifolia* L. var. *eggersii* Senn, Rhodora 41: 350. 1939. (Type: St. Thomas, Eggers 130.)

Crotalaria lotifolia L. var. *grandiflora* Urban, Symb. Antill. 8: 279. 1920. nomen nudum.

Crotalaria lotifolia L. var. *grandifolia* Urban, Symb. Antill. 8: 279. 1920. nomen nudum.

Woody branched herb to 2 m tall, sometimes slender or vinelike. Stipules minute, caducous; petioles 2-6 cm long, leaflets 3, oblong to elliptic, 1-4 cm long,

6-7 mm wide, apex obtuse, base cuneate, short-stalked, silky pubescent or glabrate. Racemes axillary, peduncles 1.5 cm, few-flowered; calyx segments lanceolate, acuminate 5-7 mm long; corolla yellow, standard with reddish veins. Pods narrowly oblong, 2-3 cm long, 6 mm thick, finely appressed pubescent; seeds < 20, cordiform, 2.5 mm long, black.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Dominica!, Martinique!, the Grenadines!, Barbados.

***Crotalaria micans* Link, Enum. Hort. Berol. Alt. 2: 228. 1822.**

Type: America meridionalis, *Humboldt 2172*.

Syn.: *Crotalaria anagyroides* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 404. 1824, quarto ed. (Type: Venezuela, *Humboldt*.)

Shrub to 3 m tall, stems striate, pubescent. Stipules linear-triangular, 4 mm long, caducous; petioles 2.5-5 cm; leaflets 3, narrowly elliptic, to lanceolate, 5-7 cm long, 2-3 cm wide, apex acute, acuminate or mucronulate, glabrous above, pubescent below. Racemes terminal, < 30 cm long, with 15-30 flowers each 1.5 cm long, yellow sometimes striped with purple. Fruit oblong, 3-3.5 cm long, 1-1.3 cm wide, pubescent or glabrate, strongly ribbed; seeds < 20, to 3.5 mm long, brown.

GENERAL DISTRIBUTION: Mexico, Central America, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe, Dominica!, Martinique, St. Vincent!.

***Crotalaria pallida* Aiton, Hort. Kew. 3: 120. 1789.**

Type: Cultivated plant, seeds from Africa, no collector or collection cited.

Syn.: *Crotalaria mucronata* Desv., J. Bot. Agric. 3: 76. 1814.

Crotalaria striata DC., Prodr. 2: 131. 1825. (Type: *Lechenault*.)

Erect annual or shrub to 2 m, shortly hairy stems. Stipules small, filiform or wanting; petioles 4-5 cm; leaflets 3, elliptic to obovate, 4-13 cm long, 2-6 cm broad, apex obtuse, emarginate. Inflorescence 13-30 cm long, with many flowers about 1.3 cm long; standard narrowly ovate, dull yellow with keel strongly purple striate. Pod subcylindric, 4 cm long, 6-8 mm wide, slightly curved, puberulous or glabrate, adaxial suture prominent; seeds ca. 20, cordiform, 3 mm long, brown.

GENERAL DISTRIBUTION: Throughout the tropics as a weed.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Dominica!, Martinique, St. Vincent!.

***Crotalaria pumila* Ortega, Nov. Pl. Descr. Dec. 2: 23. 1797.**

Type: Cuba, cultivated plant.

Diffusely branched perennial herb to 1 m. Stipules minute, caducous; petioles 1-1.5 cm, leaflets 3, elliptic to obovate-elliptic, 1-2 cm long, 0.5-1 cm wide, apex

acute, base cuneate. Racemes to 4 cm long, flowers 6-7 mm long, corolla yellow. Pods oblong, 1 cm long, 5 mm thick; seeds < 10, cordiform, 2 mm long, brown.

GENERAL DISTRIBUTION: United States, Mexico, Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Guadeloupe, Martinique!, Barbados.

***Crotalaria quinquefolia* L., Sp. Pl. 2: 716. 1753.**

Type: India, Rheede, Hort. Malab. 9: 51, t. 28. 1689.

Herb or shrub to 1 m tall, stems pubescent. Stipules narrowly lanceolate, 3-4 mm long, petioles 4-6 cm long, leaflets 5, lanceolate, 9 cm long, 0.5 cm wide, glabrate above, pubescent below. Racemes elongate, terminal, with many flowers to 1.6 cm long; corolla yellow with purple or brown streaks. Fruit oblong, to 6 cm long, 1.5 cm thick; seeds 30-40.

GENERAL DISTRIBUTION: Pantropical.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Martinique!, Barbados!.

***Crotalaria retusa* L., Sp. Pl. 2: 715. 1753.**

Type: Ceylon, Herm. 2: 21, 84; 4: 51, 78.

Branched annual to 1 m tall, stems pubescent. Stipules filiform, 1.5-3 mm long; petioles 2 mm long, leaves simple, oblanceolate to oblong-obovate, 3.5-10 cm long, 1.8-3 cm wide, apex rounded or emarginate, generally narrowed to the base, glabrous above, adpressed pubescent below. Racemes to 30 cm long, lower flowers often widely spaced, flowers 1.7 cm long; calyx 2-lipped, lobes lanceolate, 6-7 mm long; corolla pale yellow with purplish veins inside and dark red veins outside. Fruit oblong, 2.4-4.5 cm long, 1.3-1.8 cm wide, glabrous; seeds about 20, golden brown to black, 4 mm long.

GENERAL DISTRIBUTION: Probably of Asian origin but now pantropical.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Shack-shack, popbush, shak shak.

NOTE: Alexander Anderson recorded the fact that seeds were received from Banks in 1786 and grown at the St. Vincent Botanic Garden. By 1800 the plant had overrun the island and was a pest. The plant is reported to be toxic to horses.

***Crotalaria spectabilis* Roth, Nov. Pl. Sp. 341. 1821.**

Type: India, collector not specified.

Syn.: *Crotalaria sericea* Retz., Observ. Bot. 5: 26. 1788, nom. illeg., not Burm.

Erect branched annual to 2 m, angled glabrous stems. Stipules obliquely oblong-ovate, 3-7 mm long; petioles 4-6 mm long; leaves simple, oblanceolate to obovate, 8-14 cm long, 3-8 cm wide, apex rounded or mucronate, base cuneate, glabrous above, adpressed pubescent below. Racemes 21-45 cm long, with many flowers 1.5-2 cm long, corolla yellow with purple lines. Fruit broadly oblong, 4.5-5 cm long, 1.8-2 cm thick, glabrous; seeds about 22, dark brown, cordiform, to 4.5 mm long.

GENERAL DISTRIBUTION: An Asian species now widespread in the tropics.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Lucia!.

Crotalaria stipularia Desv., J. Bot. Agric. **3**: 76. 1814.

Type: Cayenne

Syn.: *Crotalaria stipularia* Desv. var. *grandifolia* Senn, Rhodora **41**: 333. 1939. (Type: Martinique, *Hahn* 239.)

Annual herb, often woody below, to 90 cm tall, pubescent with long hairs. Stipules broad, decurrent on stem to 5 cm, tips free, incurved; leaves simple, oblong or lanceolate, 2-8 cm long, 0.4-2.5 cm broad, apex obtuse and mucronulate to acute, base rounded. Racemes few- or several-flowered, flowers 1 cm long, calyx deeply 5-cleft, segments lanceolate, long hairy; corolla yellow. Pod oblong 2-3 cm long, 1 cm thick, glabrous; seeds cordiform, 2 mm long, tan to yellow-green.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAME: Herbe à quaquia.

NOTE: A specimen *Britton & Cowell 128* from St. Kitts has been annotated as a hybrid between *C. sagittalis* and *C. stipularia* by Wendler.

Crotalaria verrucosa L., Sp. Pl. **2**: 715. 1753.

Type: India.

Syn.: *Crotalaria caerulea* Jacq., Icon. Pl. Rar. **1**: t. 144. 1784. (Lectotype: *ibid.* t. 144.)
Crotalaria verrucosa L. var. *genuina* Stehlé, Bull. Mus. Nat. Hist. (Paris) **2**, **18**: 101. 1946.

Crotalaria verrucosa L. var. *obtusa* DC., Prodr. **2**: 125. 1825. (Type: India Orient, syntypes cited.)

Annual herb to 80 cm tall, the branches angled, zigzag, appressed pubescent. Stipules ovate, rounded or sickle-shaped, often encircling the node, 0.7-2 cm long, 0.5-1.3 cm wide; petioles 2-3 mm long; leaves simple, broadly ovate to elliptic, 3-7 (5-12) cm long, 2-6 (4-8) cm wide, apex rounded, or acute and mucronulate, base narrowed, glabrous. Racemes terminal, several-flowered, to 24 cm long, calyx deeply cleft, lobes 6 mm long, upper lobe ovate, lower lanceolate, corolla blue, often variegated with white. Pod oblong, 3-4 cm long, 9-12 mm thick, adpressed pubescent or with spreading brown hairs; seeds about 12, brown, 5 x 4 mm.

GENERAL DISTRIBUTION: Native of Asia now widely naturalized in the tropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Shack-shack, purple popbush.

Crotalaria zanzibarica Bentham, London J. Bot. 2: 584. 1843. FIGURE 168.

Type: Zanzibar, *Bojer*.

Syn.: *Crotalaria usaramoensis* Baker, J. Linn. Soc., Bot. 42: 346. 1914. (Type: German East Africa, syntypes cited.)

Annual or perennial, to 2 m tall, stems ribbed, adpressed pubescent. Stipules wanting; petioles 3-4 cm, leaflets 3, lanceolate to elliptic-oblong, 6-10.5 cm long, 1-4 cm wide, apex acute and apiculate, base cuneate, glabrous above, pubescent below. Racemes 30-40 cm long, with many flowers 1.2 cm long, corolla yellow, the standard with reddish purple veins. Fruit cylindrical, 3-4.5 cm long, 0.7-1.1 cm wide, puberulous; seeds 2 mm long, pinkish.

GENERAL DISTRIBUTION: Africa, introduced to tropical America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Barbados!.

DALBERGIA L. f.

Dalbergia L. f., Suppl. Pl. 52, 316. 1782, nom. cons.

Syn.: *Ecastaphyllum* P. Browne, Civ. Nat. Hist. Jamaica 299. 1756. Type: *E. brownei* Pers.

Amerimnon P. Browne, Civ. Nat. Hist. Jamaica 288. 1756. Type: *A. brownei* Jacq., nom. rejic.

Hecastophyllum Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 304. 1824. (folio ed.). Orthographic variant of *Ecastaphyllum*

Trees, shrubs with scandent branches, or lianas, sometimes spiny. Stipules small, caducous; leaves alternate, unequally pinnate with alternate leaflets or reduced to a single leaflet. Flowers in short terminal and axillary panicles or racemes; calyx 5-lobed, the lateral often reduced, lower lobe longest, the upper often fused; corolla small, usually white or yellow; stamens 9 or 10, all united or the upper free, anthers uniform; ovary with few ovules, style usually curved, stigma terminal, small. Fruit indehiscent, oblong, linear or oblong-elliptic, thin and winglike.

TYPE SPECIES: *Dalbergia lanceolaria* L. f.

A genus of 100 species throughout the tropics. *Dalbergia sisso* Roxb. has been cultivated in botanical gardens.

KEY TO THE SPECIES

- Leaves on mature plants pinnately compound with 3-5 leaflets; petals subequal; stamens 9 diadelphous *D. monetaria*
 Leaves on mature plants of 1 leaflet; petals unequal; stamens 10 monadelphous *D. ecastaphyllum*

Dalbergia ecastaphyllum (L.) Taubert in Engler & Prantl, Nat. Pflanzenfam. 3(3): 335. 1894. FIGURE 179.

Basionym: *Hedysarum ecastaphyllum* L., Syst. Nat. ed. 10, 2: 1169. 1759.

Type: Jamaica, P. Browne, Civ. Nat. Hist. Jamaica t. 32, f. 1. 1756.

Syn.: *Hecastophyllum brownei* Pers. sensu Duss, Fl. Phan. Antill. Franç. 222. 1897.

Small tree with scandent branches, or shrublike vine 2-10 m long. Stipules lanceolate, 1 cm long, acuminate, silky pubescent; petioles 5-12 mm long, single leaflet ovate, 6-12 cm long, 4.5-8 cm wide, apex short-acuminate, base rounded, glabrous or nearly so. Panicles axillary, 1-3 cm long, pedicels 2-4 mm, calyx 5 mm long, pubescent; corolla 1 cm long, standard 7 mm long, wings longer, keel 6 mm long. Pod suborbicular or broadly oval, 1.5-3 cm long, pubescent; seeds oblong, 1.7 cm long, 1 cm wide, flattened, brown.

GENERAL DISTRIBUTION: Florida, Greater Antilles, Trinidad, South America, tropical Africa.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Barbuda!, Antigua!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

Dalbergia monetaria L. f., Suppl. Pl. 317. 1782.

Type: Surinam, no collector stated.

Syn.: *Dalbergia volubilis* (L.) Urban, Repert. Spec. Nov. Regni Veg. 16: 136. 1919, not Roxb.

Climbing shrub with long branches. Stipules minute, caducous; leaves pinnately compound, leaflets 3-5, elliptical or rounded-elliptic, 5-13 cm long, to 10 cm wide, apex acuminate, rarely acute, base rounded. Panicles 1-3 cm long; calyx 3 mm long; petals 6 mm long, keel shorter than the wings. Fruit glabrous, 2.5-3.5 cm long; seeds rounded and deeply emarginate at hilum or reniform, < 2 cm long, 1.5 cm wide, flattened, brown.

GENERAL DISTRIBUTION: Jamaica, tropical South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!.

DESMODIUM Desv.

Desmodium Desv., J. Bot. Agric. 1: 122. 1813, nom. cons.

Syn.: *Meibomia* Heister ex Fabricius, Enum. 168. 1759. Type species: *Hedysarum canadense* L. = *Meibomia canadense* (L.) Kuntze.

Herbs, often woody at base, or stems prostrate and rooting to ascending or erect. Stipules scarious or membranous, persistent or caducous; leaves mostly 3-foliolate, occasionally reduced to one, often quite variable in size and shape on one plant; stipellate. Inflorescence terminal or axillary racemes or panicles; flowers small, pink, pink and white, blue or bluish or rarely dark red; pedicels single or paired, short or filiform, subtended by a primary bract or that with secondary bracts, persistent or caducous; calyx tube short, apex bilabiate, the upper 2-toothed, the lower with 3 acute teeth; standard oblong to orbicular, narrowed at the base, wings more or less adherent to keel, keel straight or incurved, obtuse; vexillary stamen connate or free, anthers uniform; ovary sessile or stipitate, ovules 2- several, style inflexed, glabrous, stigma terminal,



FIGURE 178 (left). *Desmodium incanum*, x 0.4. FIGURE 179 (right). *Dalbergia ecastaphyllum*, x 0.4.

capitate. Fruit a loment, flattened, straight, curved or appearing to be twisted by the consistent or alternately recurved margins of the article, jointed, the isthmi shallow or approaching the upper suture, narrow to broad, articles 1 or 2 to several, all fertile or only the terminal one, mostly indehiscent, pubescent with hooked hairs, often reticulate veined; seeds compressed, reniform, quadrangular or orbicular, small, shining and smooth.

TYPE SPECIES: *Hedysarum scorpiurus* Sw. = *Desmodium scorpiurus* (Sw.) Desv., type cons.

A genus of 300 species of warm and tropical regions, worldwide.

CULTIVATED TAXA

The following species are represented usually by single and old collections, and the plants may not have persisted:

Desmodium cajanifolium (Kunth) DC. Two Belanger collections (P) were made in 1857 on Martinique presumably from plants at the St. Pierre Botanical Garden.

Desmodium canescens (L.) DC. This North American species was listed by Urban in the flora of Hispaniola and also from Saba. No specimens were cited and Stoffers does not cite this record for the Dutch Antilles.

Desmodium cinereum Poeppig. According to Fournet (p. 770) recently introduced to the French Antilles as a forage plant.

Desmodium gyroides DC. Similarly reported by Fournet as a forage plant.

Desmodium gyrans (L.) Kuntze. Duss 1105 (NY) indicates this plant was introduced to Martinique and was under cultivation in 1883.

Desmodium heterocarpum DC. Grisebach (1859) cited a Guilding collection from St. Vincent.

Desmodium intortum (Miller) Urban. Stated by Fournet to be a recent introduction as a forage plant in the French islands.

Desmodium motorium (Houtt.) Merr. Belanger 479 (P) was made in Martinique in 1857, presumably also from the St. Pierre Botanical Garden. Fournet says it is cultivated and naturalized in the vicinity of St. Pierre, but no specimens have been seen.

Desmodium perrottetii DC. was collected in 1938 at Tivoli Gardens, Guadeloupe, Stehlé 3528. This is a South American species.

Desmodium wydlerianum Urban, Symb. Antill. 2: 302. 1900. A specimen, Broadway 1885, collected in Grenada in 1906, was so annotated by Schubert.

Desmodium uncinatum DC., Prodr. 2: 325. 1825. Cited by Boldingh from Saba for his 1504a, collected between Marypoint and Bottom. Stoffers (1979) cited a collection "Boldingh 1504a," sterile and without location, as *Desmodium tortuosum*. Schubert related that Schindler (Repert. Spec. Nov. Regni Veg. 22: 274-6) proposed that the amalgam of collections relegated to *D. uncinatum* was in fact representative of 11 somewhat related species of which he described five (op. cit. 20: 142-4). Fournet (p. 770) regarded *D. uncinatum* as a synonym of *D. intortum* (Miller) Urban.

KEY TO THE SPECIES

1. Leaflets generally 1-foliolate.
2. Leaflets ovate to broadly ovate-elliptic; inflorescence axillary, dense, parts densely ferruginous pubescent *D. velutinum*

2. Leaflets linear-oblong; inflorescence terminal, laxly flowered; pubescent silvery "*D. incanum* var. *angustifolium*"
1. Leaves regularly trifoliate.
 3. Stems prostrate rooting at the nodes; leaflets less than 1 cm long *D. triflorum*
 3. Stems ultimately ascending or erect.
 4. Flowers in short, dense, terminal inflorescences; calyx long silky pubescent; fruit dehiscent *D. barbatum*
 4. Inflorescence elongate; fruit indehiscent.
 5. Fruit notched at the joints equally on both sutures.
 6. Articles 2-3 with only the terminal fertile, that one 6-7 mm long, emarginate on the ventral side, puberulous *D. glabrum*
 6. Articles 4-8, all fertile, with hooked hairs.
 7. Articles narrowly elliptical, twice as long as wide; stipules amplexicaule, acuminate *D. scorpiurus*
 7. Articles orbicular to rhomboidal, appearing twisted due to recurved margins.
 8. Stems procumbent, stipules subulate from a broad base; leaflets rhomboid-ovate to ovate-lanceolate, apex acute *D. procumbens*
 8. Stems erect, stipules semicordate at the base, ovate-lanceolate; leaflets oblong-ovate, obtuse; articles conspicuously reticulate-veined *D. tortuosum*
 5. Fruit notched more deeply from the ventral side, upper margin nearly straight.
 9. Fruit with 5-7 articles; rooting sparingly from the lower nodes; stipules half united, persistent *D. incanum*
 9. Fruit of 1-4 articles; branches trailing or stoloniferous, rooting freely.
 10. Inflorescence terminal; articles 2-4, usually longer than broad, to 5.5 mm long *D. adscendens*
 10. Inflorescence axillary, to 60 cm long with long stalks; articles 1-3.
 11. Stems and petioles puberulous, without long hairs; leaflets broadly ovate, acuminate *D. axillare* var. *stoloniferum*
 11. Stems and petioles with long hairs; leaf tips not acuminate.
 12. Leaflets broadly rhombic-ovate, obtuse at apex *D. axillare* var. *axillare*
 12. Leaflets ovate-elliptic, acute at apex *D. axillare* var. *acutifolium*

***Desmodium adscendens* (Sw.) DC., Prodr. 2: 232. 1825.**

Basionym: *Hedysarum adscendens* Sw., Prodr. 106. 1788.

Type: Ind. Occ., Swartz (holotype, s).

Herbs, repent and rooting along the stem, 6-24 inches tall. Stipules obliquely ovate-lanceolate, 0.5-1 cm long, 1.5-3 mm wide, striate, ciliate, persistent; petioles 1-1.8 cm long, terminal leaflet elliptic-obovate 1.7-4 cm long, 0.75-2 cm wide, lateral leaflets 1.3-3 cm long, 0.7-2 cm wide, apex acute to obtuse or emarginate, base cuneate to rounded, densely pilose both surfaces. Inflorescence of terminal and lateral racemes, pedicels 0.5-1 cm long; flowers white or pale pink. Loment stipe 0.5-2 mm long, 1-5-articulate, articles oblong, straight on upper suture, curved below, constricted about 1/2 their width at the isthmi, 3.5-5.5 mm long, 2.5-3 mm wide.

GENERAL DISTRIBUTION: Widespread in tropical Asia, Africa and America as one of the common species.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Sweethearts, cousin, trèfle savane.

Desmodium axillare (Sw.) DC., Prodr. 2: 333. 1825.

Basionym: *Hedysarum axillare* Sw., Prodr. 107. 1788.

Type: Jamaica, *Browne* (BM).

Herbs, stem repent and rooting at nodes, appearing rhizomatous, internodes 1.3-11 cm long. Leaves trifoliate, stipules connate to 1/2 their length, early deciduous; petioles 6-12 cm long. Inflorescence axillary, often to 60 cm long, flowers racemose, pedicels elongate, 1-1.5 cm long. Loment 1-3 but mostly 2-articulate, stipitate, upper suture continuous and straight, articles 8-10 mm long, 5 mm wide.

COMMON NAMES: Cousin, trèfle rampant.

NOTE: The species is composed of three well defined, easily distinguishable varieties:

Desmodium axillare (Sw.) DC. var. **acutifolium** (Kuntze) Urban, Symb. Antill. 4: 292. 1905.

Basionym: *Meibomia axillaris* (Sw.) Kuntze var. *acutifolia* Kuntze, Revis. Gen. Pl. 1: 195. 1891.

Type: Panama, Kuntze.

Syn.: *Desmodium axillare* (Sw.) DC. var. *angustatum* Urban, Symb. Antill. 4: 303. 1900. (Type: Several syntypes cited.)

Meibomia umbrosa Britton, Bull. Torrey Bot. Club 37: 353. 1910. (Type: Jamaica, Britton 444 (holotype, NY).)

This variety is characterized by the long dense pubescence of the stems, in contrast to the short uncinulate pubescence on the stems of the other two varieties, the ovate to elliptic-ovate usually long acuminate leaflets densely long pilose on the abaxial surface.

GENERAL DISTRIBUTION: Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!.

Desmodium axillare (Sw.) DC. var. **axillare**.

Basionym: *Hedysarum axillare* Sw., Prodr. 107. 1788.

Syn.: *Desmodium axillare* (Sw.) DC. var. *genuinum* Urban, Symb. Antill. 2: 303. 1900.

Meibomia axillaris (Sw.) Kuntze var. *obtusifoliola* Kuntze, Revis. Gen. Pl. 1: 195. 1891. (Type: Not indicated.)
Desmodium axillare (Sw.) DC. var. *obtusifoliola* (Kuntze) Schindler, Repert. Spec. Nov. Regni Veg. 20: 284. 1924.

The typical variety is also the most common and is distinguished by its rhombic ovate or rhombic orbicular terminal leaflets, and the short stipes of its loment (3-4.6 mm) which are exceeded in length by those of the other two varieties.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles and northern part of South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Kitts!, Nevis!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

Desmodium axillare* var. *stoloniferum (Rich. ex Poiret) Schubert, J. Arnold Arb. 44: 289. 1963.

Basionym: *Hedysarum stoloniferum* Rich. ex Poiret in Lam., Encycl. 6: 421. 1804. (Type: Antilles, Richard, Hb. Juss. n.v.)
Syn.: *Desmodium axillare* (Sw.) DC. var. *sintenisii* Urban, Symb. Antill. 2: 303. 1900. (Type: Syntypes cited.)

The variety *stoloniferum* is intermediate in aspect between var. *axillare* and var. *acutifolium*. It may be distinguished by its ovate, abruptly short acuminate leaflets and by the denser pilosity on the abaxial surface of the leaflets as well as by its longer pedicels and loment stipes.

GENERAL DISTRIBUTION: Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique, according to Fournet, but no specimens have been cited or seen.

***Desmodium barbatum* (L.) Benth** in Miquel, Pl. Jungh. 224. 1852.

Basionym: *Hedysarum barbatum* L., Syst. Nat. ed. 10, 2: 1170. 1759.
Type: LINN 921.48.

Herbs with prostrate to ascending or erect stems with white to fulvous appressed to spreading pilosity on most parts. Stipules deltoid attenuate 6-10 mm long, slightly auriculate at base, striate and ciliate; petioles 0.8-2.2 cm long; leaflets 3, orbicular to ovate, elliptic obtuse or obovate, the terminal 1.4-5 cm long, 0.5-2 cm wide, laterals smaller, usually mucronate or retuse at apex. Inflorescence axillary or terminal, densely flowered racemes, calyx conspicuously silky pilose. Loment 1-5-articulate, straight on dorsal suture, somewhat curved below between the wide isthmi, hooked pubescent; articles separating partially first, lower suture dehiscing later, articles 2-3.5 mm long, 2-2.5 mm wide.

GENERAL DISTRIBUTION: A polymorphic species widespread in tropical areas of the New World, Africa and Asia.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Lucia!, Barbados!.

COMMON NAMES: Pistache marron, pistache savon.

Desmodium glabrum (Miller) DC., Prodr. 2: 238. 1825.

Basionym: *Hedysarum glabrum* Miller, Gard. Dict. ed. 8, no. 12. 1768.

Type: Mexico, *Houstoun* (holotype, BM).

Syn.: *Hedysarum molle* Vahl, Symb. Bot. 2: 83. 1791. (Type: St. Croix, *Pflug* (holotype, c).)

Desmodium molle (Vahl) DC., Prodr. 2: 332. 1825.

Hedysarum emarginatum Poiret in Lam., Encycl. 6: 412. 1804. (Type: Martinique (P-LAM).)

Erect herb to 2 m tall. Stipules ovate to 6.5 mm long, 3 mm wide, long attenuate, slightly auriculate at base, turning purplish and becoming reflexed, persistent; petioles to 3 cm long; terminal leaflet ovate to 7.5 cm long, 4.5 cm wide, apex acute, base rounded or cuneate, lateral leaflets smaller. Inflorescence racemose-paniculate, flowers fasciculate, pedicels 5-7 mm long. Loment almost sessile, to 3-articulate, terminal article enlarged and flattened, elliptic except for indentation over seed, glabrous except on suture, subterminal articles quadrangular with alternate margins folded in or back and appearing twisted, uncinately puberulent.

GENERAL DISTRIBUTION: Mexico, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Saba!, Guadeloupe, Martinique, the Grenadines!, Grenada!.

Desmodium incanum DC., Prodr. 2: 332. 1825.

FIGURE 178.

Type: Plumier, Pl. Amer. 149, f. 1. 1756.

Syn.: *Hedysarum incanum* Sw., Prodr. 107. 1788, nom. illeg. not *H. incanum* Thunb.

Hedysarum supinum Sw., Prodr. 106. 1788, nom. illeg. not *H. supinum* Chaix ex Villars.

Desmodium canum (J. Gmelin) Schinz & Thell. in Schellenb., Schinz & Thell., Mém. Soc. Sci. Nat. Neuchâtel 5: 371. 1913.

Hedysarum canum J. Gmelin, Syst. Nat. ed. 13, 2: 1124. 1791, nom. illeg.

Hedysarum frutescens sensu Jacq., Hort. Bot. Vindob. 3: 47, t. 89. 1777, not L. 1753.

Desmodium frutescens Schindler, Repert. Spec. Nov. Regni Veg. 21: 9. 1925.

Suffrutescent to shrubby, ascending to erect, to 3 m tall. Stipules obliquely ovate acuminate, 6-10 mm long, 1-2 mm wide, partially connate on the stem opposite the petiole, long persistent; petioles 1.3-3.5 mm long; leaflets variable, often nearly orbicular at the base of the plant to lanceolate at the top, mostly elliptic 4-9 cm long, 2.5-4.5 cm wide, lateral leaflets smaller, acute at the apex, rounded at the base, characteristically dark green above and densely pilose on

the lighter colored lower surface. Inflorescence terminal and axillary, racemose, pedicels solitary 5-10 mm long; flowers pink or bluish pink, occasionally white. Loment with stipe 1.5-2 mm long, to 8-articulate, usually straight above, invaginated about 2/3 the width at the isthmi, hooked pubescence, articles 3.5-4 mm long, 2.5-3 mm wide.

GENERAL DISTRIBUTION: In tropical areas through the Americas, also in tropics of Old World.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Cacoyer grand wiss, sweethearts.

REFERENCE: D. Nicolson, *Taxon* **27**: 365-370. 1978.

NOTE: *Desmodium incanum* var. *angustifolium* Griseb., Fl. Brit. W. Indian Is. 187. 1859, is a very distinctive form with large oblong single leaflets and is recognized in some floras as a distinctive taxon. In our area these plants may have trifoliate leaves as well as single leaflets and show a great variation in leaflet size and shape on one individual. This "variety" occurs on the following islands in the Lesser Antilles: St. Barts!, Antigua!, Barbuda!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, St. Vincent!, Barbados!.

Desmodium procumbens (Miller) A. Hitchc., Annual Rep. Missouri Bot. Gard. **4**: 76. 1893.

Basionym: *Hedysarum procumbens* Miller, Gard. Dict. ed. 8, no. 10. 1768.

Type: Jamaica, *Houstoun* (holotype, BM).

Syn.: *Hedysarum spirale* Sw., Prodr. 107. 1788, nom. illeg. Based on the same type as *H. procumbens* Miller.

Desmodium spirale (Sw.) DC., Prodr. **2**: 332. 1825.

Herb with several to many stems soon becoming procumbent. Stipules lance attenuate 4-6 mm long, 1-1.5 mm wide, obliquely auriculate at base, petioles 1-3.3 cm long; terminal leaflet narrowly to broadly rhombic-ovoid to ovate-lanceolate, 2.3-6 cm long, 1-3.6 cm wide, apex obtuse or acute, base cuneate, laterals similar but smaller, slightly oblique. Inflorescence axillary or terminal, racemose to paniculate, highly diffuse, flowers pink. Loment sessile to short stipitate, to 5-articulate, articles with isthmi central, rhombic in outline, appearing slightly to much twisted, hooked pubescent, 3 mm long, 2 mm wide, not conspicuously reticulate-veined.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, northern South America, and introduced to Africa and the Philippines.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Guadeloupe!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Cousin, collant, trèfle.

Desmodium scorpiurus (Sw.) Desv., J. Bot. Agric. 1: 122. 1813.

Basionym: *Hedysarum scorpiurus* Sw., Prodr. 107. 1788.

Type: Jamaica, Swartz (holotype, s).

Prostrate to ascending much-branched herb. Stipules obliquely ovate, 2-3.5 mm long, 1.8-3 mm wide, acuminate, auriculate at base with auricles usually overlapping opposite the petiole; petiole 0.9-2 cm long; terminal leaflet elliptic, 0.9-2.5 cm long, 0.7-2 cm wide, obtuse at apex, base obtuse to cuneate, lateral leaflets smaller. Inflorescence axillary or terminal racemes, pedicels 4-6 mm long; flowers pink. Loment short stipitate, stipe 1 mm long, 7-8-articulate, articles narrowly elliptic, surface strongly reticulate, densely hooked pubescent, 4 mm long, 1.5 mm wide.

GENERAL DISTRIBUTION: Throughout tropical America and a weed elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!

Desmodium tortuosum (Sw.) DC., Prodr. 2: 332. 1825.

Basionym: *Hedysarum tortuosum* Sw., Prodr. 107. 1788.

Type: Jamaica, Swartz (holotype, s).

Syn.: *Hedysarum purpureum* Miller, Gard. Dict. ed. 8, no. 6. 1768. (Type: Mexico, *Houstoun* (holotype, BM).)

Desmodium purpureum (Miller) Fawcett & Rendle, Fl. Jamaica 4: 36. 1920, not Hooker & Arn.

Woody herb or shrub to 1 m tall, branching from the base. Stipules obliquely ovate 3-12.5 mm long, attenuate, long persisting, often reflexed; petioles 0.75-5 cm long; terminal leaflet elliptic 2.4-8 cm long, 1-2.7 cm wide, apex obtuse, base cuneate, lateral leaflets smaller. Inflorescence axillary and terminal, racemose to paniculate; pedicels 1-1.6 cm long. Loment 5-7-articulate, stipe 0.5-1 mm long, articles orbicular, sometimes with margins alternately revolute, appearing rhomboidal, 3-3.5 mm long, 2.6-3.5 mm wide, hooked pubescent, conspicuously reticulate-veined.

GENERAL DISTRIBUTION: Native to subtropical and tropical America but widely cultivated as a green manure.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique, St. Lucia, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Beggarweed, sweetheart.

NOTE: Distinguished by thick leaflets with prominent reticulate venation and large persistent stipules and long stiff spreading pedicels.

Desmodium triflorum (L.) DC., Prodr. 2: 334. 1825.

Basionym: *Hedysarum triflorum* L., Sp. Pl. 2: 749. 1753.

Lectotype: LINN 921.45.

Syn.: *Desmodium triflorum* (L.) DC. var. *minus* Wight & Arn., Prodr. 1: 229. 1834.

Desmodium triflorum (L.) DC. var. *minus* Stehlé, Bull. Mus. Hist. Nat. (Paris) 2, 1: 104. 1946, sphalma.

Low creeping herbs with several stems and rooting at the nodes. Stipules obliquely ovate, 2-3.5 mm long, long acuminate, truncate at base, persistent; petioles 3-7.5 mm long; terminal leaflet obovate, 5-10 mm long, 5-11 mm wide, laterals similar or elliptic, apex retuse or truncate, cuneate at base. Inflorescence axillary, compressed, usually of 3-4 pairs of flowers; flowers pink. Loment sessile, to 5-articulate, straight or curved on upper suture, slightly invaginated on lower; articles hooked pubescent, ultimately separating at the wide isthmi, 2.5-4 mm long and wide.

GENERAL DISTRIBUTION: Widespread in tropic areas, often appearing as a lawn weed and resembling clover (*Trifolium*) in appearance.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Antigua!, St. Eustatius!, St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

***Desmodium velutinum* (Willd.) DC., Prodr. 2: 328. 1825.**

Basionym: *Hedysarum velutinum* Willd., Sp. Pl. 3: 1174. 1802.

Type: holotype, Herb. Willd. 13763.

Syn.: *Desmodium latifolium* (Ker Gawler) DC., Prodr. 2: 328. 1825.

Woody herb or shrub to 2 m tall, stems with ferruginous hairs. Stipules linear from a broad base, 5-8 mm long, 0.5-3 mm wide; petioles 0.2-2.2 cm long; leaflets 1 or rarely 3, ovate to oblong-ovate, 3-12 cm long, 1.1-7 cm wide, apex bluntly acute to rounded, base cuneate to subcordate, often velvety pubescent below. Inflorescence terminal or axillary racemes, 2-30 cm long, pedicels 1.5-3 mm long, corolla mauve, violet, lilac, red or blue. Loment of 4-6 articles, upper suture straight or indented between articles, lower suture shallowly indented at the isthmi, articles 3-3.5 mm long, 2.5-3 mm wide, ferruginous pubescent with hooked hairs.

GENERAL DISTRIBUTION: Africa and Asia.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!.

NOTE: This species was apparently introduced to the St. Pierre Botanical Garden in 1856. Duss reported it was naturalized in 1880. It is established today on St. Lucia.

DIOCLEA Kunth

***Dioclea* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 437, t. 576. 1824.**

Woody vines. Stipules lanceolate or triangular; leaflets 3, pinnately arranged, entire, revolute, with variable pubescence, stipels setaceous to filiform. Inflorescences axillary, fasciculate racemose, tuberculate, erect, bracts linear to triangular, persistent or caducous; flowers violet, purple or blue; calyx tube 4- or 5-lobed, pubescent within, glabrous or pubescent outside, upper lobes

partially or completely fused; standard oblanceolate to orbicular, emarginate, basally biauriculate and usually bicallose, glabrous, carnose or membranous, keel petals fused distally, auriculate; stamens 10 diadelphous but vexillary stamens fused about middle of tube, anthers similar or dimorphic; pistil compressed, geniculate, villous, upper part of style glabrous, stigma capitate. Legume oblong, flat, compressed or turgid, variably dehiscent; seeds large, few, cuboidal, or small and many, hard, flat, oblong, hilum linear or short oblong, encircling 1/5 to 3/4 the testa.

LECTOTYPE SPECIES: *Dioclea sericea* Kunth.

A pantropical genus of about 50 species, the majority in South America.

KEY TO THE SPECIES

- Stems with long pilose pubescence; leaflets with 8 or 9 primary veins; inflorescence bracts linear-lanceolate, long ciliate; flowers 2 or 3 at each node; fruit densely pubescent *D. megacarpa*
 Stems with appressed short gray pubescence; leaflets with 11 to 13 primary veins; inflorescence bracts ovate-lanceolate, short pilose pubescent; flowers 5 to 7 at each node; mature fruit glabrous *D. mollicoma*

Dioclea megacarpa Rolfe, Kew Bull. 139. 1901.

FIGURE 180.

Lectotype: Trinidad, Hart 6406 (K).

Stout vines. Stipules lanceolate, to 35 mm long, pilose; petioles to 7 cm long, pilose, stipels filamentous, 4-7 mm long; leaflets broadly elliptic to obovate orbicular 15-23 cm long, 6-13 cm wide, usually glabrous above, sparsely pubescent below, chartaceous, primary veins ca. 8 pairs, base obtuse to subcordate, apex rounded and abruptly short apiculate. Inflorescences to 45 cm long, tubercles stout, clavate, fuscous ferruginous; bracts lanceolate 10-20 mm long, ca. 3 mm wide, reflexed, conspicuously aggregated at tip of racemes but caducous, flowers straight 1.5-2 cm long; calyx tube 7 mm long, carnose, brown pubescent outside, velutinous inside, upper lobes fused, emarginate, 7 mm long; standard obovate orbicular, carnose, bicallose, ca. 20 mm long, wings obliquely oblong, 10 mm long, keel triangulate 9 mm long, auriculate, claw 5 mm long, culminating in a truncate beak; alternate anthers imperfect. Fruit compressed, oblong 18 x 6 x 3.4 cm, dehiscent, upper suture with parallel thick ribs, lower margin swollen; seeds 2 to 4 suborbicular to oblong, 3 x 3 x 2 cm, hard, reddish brown, hilum circling 2/3 the testa.

GENERAL DISTRIBUTION: Panama, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Vincent!, Grenada!.

COMMON NAME: Donkey eyes.

Dioclea mollicoma Ducke, Tropical Woods 90: 19. 1947.

Type: Brazil, Esperança, Ducke 1598.

Woody vine, stems gray pilose. Stipules ovate-lanceolate, 10 x 4 mm, gray-

pilose; petioles 10 cm long, pilose; stipels early caducous; leaflets broadly ovate, 8-16 x 5-10 cm, glabrous above, soft silvery pubescent below, primary veins 11 to 13 pairs, base rounded to subtruncate, apex short acuminate. Inflorescence 15-20 cm long, densely flowered, nodes with 5 to 7 pedicelled flowers, bracts ovate-lanceolate, 15-20 x 4-5 mm, suberect, grayish pubescent; corolla reddish violet. Mature fruit oblong, compressed, to 15 x 4-6.5 x 1 cm, upper suture thickened, erect, lower not thickened, surface glabrous at maturity, prominently rugose-reticulate; seeds oblong to oval, compressed, 4 cm dia., 7 mm thick.

GENERAL DISTRIBUTION: Brazil.

DISTRIBUTION IN LESSER ANTILLES: Reported from the Layou River Flats of Dominica on the basis of *Ramage s.n.*, 18 June 1888 (K, annotated by R. H. Maxwell).

DUSSIA Krug & Urban

Dussia Krug & Urban ex Taubert in Engler & Prantl, Nat. Pflanzenfam. 3(3): 193. 1892.



FIGURE 180 (left). *Dioclea megacarpa*, x 0.3. FIGURE 181 (right). *Dussia martinicensis*, x 0.3.

Trees, with red sap. Stipules minute, caducous; leaves alternate, imparipinnate 5-15-foliolate, these alternate or opposite, entire, stipels wanting. Inflorescence paniculate or racemose, axillary or pseudoterminal; flowers 15-25 mm long, purple, sometimes with greenish or white markings; calyx campanulate with 5 subequal deltoid lobes; standard orbicular-reniform; wings straight, keel equal to wings, tomentose outside; stamens 10, subequal, filaments essentially free to the base, anthers uniform, pistil subsessile, 2-4-ovulate, pubescent, style incurved, pubescent except at the apex, stigma capitate, small. Fruit ellipsoidal, compressed, 2-valved, dehiscent, orange velutinous; seeds 1-3, nearly cylindrical with one end acute, the other truncate when appressed against the second seed, hilum small, linear, lateral.

TYPE SPECIES: *Dussia martinicensis* Krug & Urban ex Taubert.

A genus of 10 species of Mexico, Central America and Peru.

REFERENCE: V. E. Rudd, Contr. U. S. Natl. Herb. **32**: 247-275. 1963.

Dussia martinicensis Krug & Urban ex Taubert in Engler & Prantl, Nat. Pflanzenfam. **3**(3): 193. 1892. FIGURE 181.

Type: Martinique, *Duss 1072*.

Tree to 20 m tall, young stems ferruginous to fulvo-tomentose becoming glabrate. Stipules caducous; petioles 11-17 cm long; leaflets 7-13, oblong, elliptic, or ovate, terminal leaflet obovate, 14-28 cm long, 3-8 cm wide, apex obtuse to acute, base obtuse to subcordate, sometimes oblique, upper surface glabrous, lower surface crispose-pubescent, primary veins straight 13-15 pairs. Inflorescence to 35 cm long, pedicels 5-8 mm; flowers 15-25 mm long, dark purple. Fruit ellipsoidal, compressed, 1-2-seeded, 8-11.5 cm long, 4-4.5 cm wide, dehiscent, valves rolling inward, coriaceous, verruculose, crisp pubescent with orange hairs; seeds cylindrical 2.5-4.5 cm long, 1.2-2 cm dia., reddish.

GENERAL DISTRIBUTION: Lesser Antilles and Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!

COMMON NAMES: Pommier, bois gamelle, caconnier blanc, conishee, gamelle.

ERYTHRINA L.

Erythrina L., Sp. Pl. **2**: 706. 1753.

Trees or shrubs, trunks usually armed with large woody thorns, branches, petioles and sometimes the midrib and veins with smaller thorns and prickles. Stipules minute, caducous; leaves alternate, pinnately 3-foliolate, stipels small, usually fleshy and glandular. Inflorescence axillary or terminal, pseudoracemose, i.e., flowers in clusters of 2-4 these scattered; flowers large, brightly colored; calyx inequilaterally campanulate or tubular, margin truncate, oblique or lobed, often split down one side; standard large, clawed or narrowed at the base, usually greatly exceeding the keel, wings often small; keel petals coherent,

or rarely free, usually much shorter than the standard; stamens 10, monadelphous or diadelphous, alternately long and short, anthers similar; ovary stipitate, fusiform, curved, 2-several-ovuled, style elongate, incurved, glabrous, stigma capitate. Legume stipitate, linear-oblong and moniliform, constricted between the seeds, often curved, dehiscent, the valves papery, woody or leathery; seeds several, ellipsoidal, often brightly colored or bicolorous; hilum linear, lateral.

LECTOTYPE SPECIES: *Erythrina herbacea* L.

NOTE: Although ING reports the type species to be *E. corallodendrum*, Krukoff and Barneby note that Walpers chose a lectotype in 1853.

A genus of over 100 species in tropical and subtropical areas of the New World and the Old World. Often cultivated as living fence posts or as pasture shade trees and in coffee plantations. Most species flower in leafless condition and are spectacular plants in the forests.

REFERENCES: B. A. Krukoff, *Brittonia* **3**: 205-337. 1939. B. A. Krukoff & R. C. Barneby, *Lloydia* **37**: 332-459. 1974.

NOTES: *Erythrina pallida* Britton & Rose (Bull. Torrey Bot. Club **48**: 332. 1922) was based on *Britton 2656* from Trinidad. Krukoff (*Brittonia* **3**: 264. 1939) attributes the species to St. Vincent on the basis of a collection from an unspecified collector. Alexander Anderson, in an unpublished manuscript, reported that he introduced a plant meeting this description to the botanic garden of St. Vincent from Trinidad before 1800. A Guilding collection of this taxon is at Kew but the plant has not been recollected in St. Vincent. It is similar to *E. corallodendrum* var. *bicolor*, differing in the standard, which has long pale cinereous hairs in the bud.

Fournet (p. 794) reported that Stehlé introduced *E. berteriana* Urban in 1964. No material seen.

KEY TO THE SPECIES

1. Standard petal 4-6 cm long, straight in open flower, crimson; wings and keel to 1 cm long and included in calyx; calyx truncate about 1 cm; leaflets broadly ovate-triangular, acuminate or acute at tip; seeds red or red and black *E. corallodendrum*
1. Standard petal recurved in open flower; wings and keel visible beyond the calyx; calyx oblique, beaked abaxially, puberulous to velvety-tomentose.
 2. Calyx 0.5-1 cm long in open flower, puberulous; standard brilliant red to salmon-orange.
 3. Calyx split adaxially; keel less than half as long as the bright orange standard and less than twice as long as wings; leaflets obtuse; seeds dark brown or black *E. fusca*
 3. Calyx not split adaxially; keel more than half as long as standard and over four times longer than wing petals; leaflets long-acute to caudate-acuminate, rarely obtuse; seeds dark brown or black.
 4. Pod papery, stipels forming stalked cuplike glands 1-4 mm long, standard orange; leaflets rhombic-ovate, 5-6 cm wide; flowers in a raceme *E. poeppigiana*
 4. Pod leathery or woody, stipels less than 0.5 mm long and not forming stalked

- cuplike glands; leaflets narrowly elliptic, 3-4 cm wide; flowers in axillary pairs or trios *E. crista-galli*
2. Calyx more than 2 cm long, densely velvety-tomentose with stellate indument at least when young, split adaxially in the open flower, standard petal 5-7 cm long; keel and wing petals subequal.
5. Pedicels up to 1 cm long; standard deep scarlet or white suffused with pink; leaflets broadly acute or shortly cuspidate at tip; seeds 6-14, brown *E. variegata*
5. Pedicels up to 2 cm long; standard orange-red; leaflets round-obtuse to emarginate at tip; seeds 1-4, red with short black line from hilum *E. velutina*

***Erythrina corallodendrum* L., Sp. Pl. 2: 706. 1753.**

- Type: Jamaica, Commelin, Hort. Med. Amstelod. t. 108.

Tree to 8 m or shrub. Petioles slender, 6-15 cm long, leaflets rhombic-ovate to rhombic-orbicular or broader than long, 5-15 cm long, 4-12 cm wide, apex acute or acuminate, base rounded or obtuse. Inflorescence of racemes 10-30 cm long, pedicels short, 3-5 mm long; calyx campanulate, 7-12 mm long, truncate; corolla coral red, 5-6 cm long, standard narrowly oblong or oblong-oblancheolate; wings scarcely exceeding the calyx, keel petals distinct, also shorter than calyx. Legume moniliform, slightly flattened, 10-15 cm long, stipe 1.5-2 cm long, beak to 2 cm long; seeds 3-9, scarlet.

GENERAL DISTRIBUTION: Jamaica and Haiti or cultivated elsewhere.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, St. Kitts!, Guadeloupe!, Marie Galante!, Les Saintes!, Dominica!, Martinique!, Barbados!.

COMMON NAMES: Red bean tree, immortel, Lent tree, Devil's tree, jumbie bread, Shrove Tuesday, môtèl.

NOTES: Krukoff (l.c. 276) described var. *connata* Krukoff with the keel petals fused. The type is Britton & Britton 231 from St. Thomas. A collection Rose, Fitch & Russel 3495 (us) from Antigua was cited with question but not by Krukoff & Barneby (l.c. 395).

***Erythrina corallodendrum* L. var. *bicolor* Krukoff, Brittonia 3: 275. 1939.**

FIGURE 182.

Type: Montserrat, Shafer 562 (holotype, NY).

Differs in having seeds part red and part black.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Jumbie cutlass, coral tree, bois immortelle.

***Erythrina crista-galli* L., Syst. Nat. ed. 12, 2: 437. 1767.**

Type: Brasil, LINN 888.4.

Syn.: *Erythrina laurifolia* Jacq., Observ. Bot. 3: 1. 1768. (Type: l.c. t. 251.)

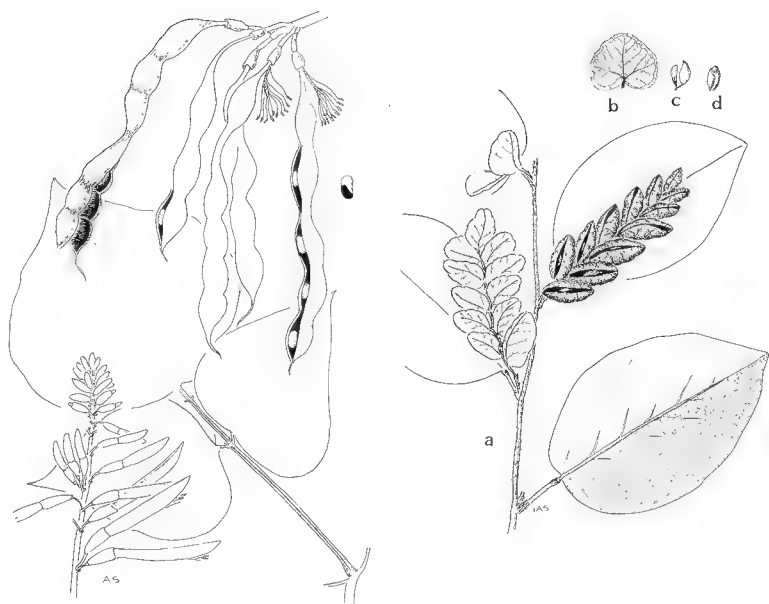


FIGURE 182 (left). *Erythrina coraliodendrum* var. *bicolor*, x 0.33. FIGURE 183 (right). *Flemingia strobilifera*, x 0.33: a, flowering and fruiting branch; b, floral bract; c, flowers; d, legume.

Small to medium tree, the trunk armed with spines, usually flowering with the leaves present. Petioles 4.5-19 cm long, usually prickly, leaflets elliptic to narrowly ovate-elliptic, 3.5-8 cm long, 1.8-3 cm wide, apex acute to rounded, base same. Flowers solitary or in clusters of 2-3 in axils running together at ends of branches to form long leafless terminal inflorescences; pedicels 1-6 cm long, calyx broadly asymmetrically campanulate 0.9-1.7 cm long with spur up to 6 mm on adaxial side; standard red, elliptic to broadly elliptic, 3.7-4.5 cm long, 2-2.6 cm wide; wings 0.7-1.2 cm long; keel 3.2-5.3 cm long. Fruiting pedicels 1.5-4.5 cm long; fruits 14-40 cm long, 1.2-1.5 cm wide, constricted between the seeds; seeds black with tawny markings, 1.2-1.9 cm long, 5-8 mm wide.

GENERAL DISTRIBUTION: Native of South America introduced and prized as an ornamental in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!.

Erythrina fusca Lour., Fl. Cochinch. 427. 1790.

Type: Viet Nam, Rumphius, Herb. Amboin. 2: 235, t. 78. 1741.

Syn.: *Erythrina glauca* Willd., Ges. Naturf. Freunde Berlin Neue Schriften 3: 428. 1801.
(Type: Venezuela. Specimens not known.)

Tree to 20 m tall, trunk armed with blunt spines, much branched and spreading. Petioles 10-19 cm long, leaflets ovate to elliptic, 2.5-15 cm long, 1.4-8 cm wide, apex rounded to subacute, base narrowed, rounded or truncate, often yellow-green above, glaucous beneath. Inflorescence to 45 cm long, pedicels 0.5-2 cm long; calyx broadly campanulate, asymmetric, 12-17 mm long on carinal side; standards bright orange-red 4.7-6.8 (9) cm long, 3.5-6 cm wide, wings yellow tipped with crimson, keel yellow outside, maroon at apex, wings 22-33 mm long, 10-18 mm wide, shorter than the keel, keel petals 25-36 mm long. Legume short stipitate, stipe 1.6 cm long, linear, compressed, 14-33 cm long, 1.4-1.8 cm wide, woody, 8-12-seeded, slightly constricted between the seeds, velvety pubescent when young; seeds dark brown or black, oblong or oblong-ellipsoid, 1.2-1.8 cm long, 5-8 cm wide.

GENERAL DISTRIBUTION: Widespread in southeast Asia and the Greater Antilles, Central America and South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!.

***Erythrina poeppigiana* (Walp.) Cook, Bull. U. S. Dept. Agr. 25: 57. 1901.**

Basionym: *Micropteryx poeppigiana* Walp., Linnaea 23: 740. 1850.

Type: Lower Peruvian Andes, *Poeppig s.n.*

Syn.: *Erythrina micropteryx* Poeppig ex Urban, Symb. Antill. 1: 327. 1899. Renaming of *Micropteryx poeppigiana*.

Large trees armed with spines. Petioles 9-33 cm long, leaflets rhombic-ovate or deltoid-ovate to broadly ovate, 8.5-19 cm long, 5.5-16 cm wide, apex acuminate to acute or occasionally obtuse; base rounded to truncate; stipels forming stalked cuplike glands 1-4 mm long. Inflorescence to 35 cm long, pedicels 0.5-1.2 cm, calyx campanulate 5.5-10 mm long, flaring at the apex, truncate with short teeth, puberulent; standard bright orange, elliptic, clawed, 3.5-5.4 cm long, 1.3-2.1 mm wide, wing petals obovate 7-10 mm long, keel petals falcate 31-45 mm long. Legumes chartaceous, 13-25 cm long, 1.1-1.4 cm wide, not constricted between the seeds, stipes 3-4 cm long, terminal beak 4-8 mm long; seeds many, coffee brown without markings, 10-17 mm long, 5-7 mm broad.

GENERAL DISTRIBUTION: Native of South America, established in Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Martinique!, St. Lucia!, Grenada!, Barbados.

COMMON NAMES: Immortelle, immortel jaune.

***Erythrina variegata* L., Herb. Amboin. 10. 1754.**

Type: Rumphius, Herb. Amboin. 2: 234, t. 77. 1741.

Syn.: *Erythrina indica* Lam., Encycl. 2: 391. 1796. (Type: India, Rumphius, Herb. Amboin. 2: 230, t. 76. 1741.)

Erythrina variegata L. var. *orientalis* (L.) Merr., Interpr. Herb. Amboin. 276. 1917.

Erythrina corallodendrum L. var. *orientalis* L., Sp. Pl. 2: 706. 1753. (Type: Rheede, Hort. Malab. 6: 13, t. 7. 1686.)

Tree to 25 m tall, much branched. Petioles 2-20 cm long; leaflets ovate to broadly rhomboid, 4-19.5 cm long, 3-21 cm wide, apex acute or acuminate, base truncate, rounded to subcordate, stellate tomentose becoming glabrous. Inflorescence dense, many-flowered, 10-20 cm long, peduncles 7-17 cm long; calyx spathaceous, 2-4 cm long, stellate to glabrate; corolla scarlet, crimson or white, standard 5-7 cm long, 3 cm wide; wings elliptic 2 cm long, 0.9 cm wide; keel petals narrowly oblong 2 cm long, 4.5 mm wide. Legume stipitate, stout cylindrical, 12-30 cm long, 2-3 cm thick, 6-13-seeded, slightly constricted between the seeds, valves veined; seeds light brown to purple brown, oblong 1.3-2 cm long.

GENERAL DISTRIBUTION: Asia, Oceania, Africa, and introduced elsewhere in the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba, Montserrat!, Guadeloupe!, Les Saintes!, Martinique!, St. Lucia!, the Grenadines!, Grenada!.

COMMON NAMES: Easter flower, immortel grand, holocauste, môtèl.

NOTES: A strikingly handsome variegated form with yellow and white markings on the leaves is the typical variety. Several other formae have been described by Maheshwari (Bull. Bot. Surv. India 3: 47. 1961) under the name *E. variegata* var. *orientalis* including the white flowered plants as forma *alba* (Blatt. & Mill.) Maheshwari. The nonvariegated plants could be called *E. variegata* var. *orientalis* (L.) Merrill, and the variegated leaf types *E. variegata* var. *variegata*.

Erythrina velutina Willd., Ges. Naturf. Freunde Berlin Neue Schriften 3: 426. 1801.

Type: Venezuela. Specimens not known.

Tree to 20 m, armed with prickles, leafed when flowering; petioles 8-19 cm long, at first pubescent with stellate hairs; leaflets rhomboid-ovate to subrotund, 5-15 cm long, 5.5-19 cm wide, apex rounded-obtuse and emarginate, base truncate to subcordate, densely pubescent with stellate hairs, becoming glabrescent above. Inflorescence 12-25 cm long, pedicels 1-2 cm long; calyx spathaceous opening laterally to near the base, 2.5-3 cm long, truncate with short teeth, densely velvety tomentose with stellate pubescence; standard 6 cm long, 3 cm broad, deeply curved, orange-red, obovate to ovate, wing 11-17 mm long, keel petals 11-17 mm long, olive-brown with crimson margins. Legume 8-13 cm long, 1.2-1.7 cm wide, deeply constricted between the seeds, stipe 1.5-2 cm long, beak 0.5-1.3 cm, seeds 1-4, red with a black line extending from the hilum, 1.4-1.7 cm long, 8-11 mm wide.

GENERAL DISTRIBUTION: Native to South America, introduced elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Martinique!, the Grenadines!, Grenada!.

COMMON NAME: Immortelle.

FLEMINGIA Aiton f.

Flemingia Aiton f., Hortus Kew. 4: 349. 1812, nom. cons.

Syn.: *Moghania* J. St. Hil., J. Bot. Agric. 1: 61. 1813.

Woody shrubs. Stipules lanceolate, caducous; leaves alternate, unifoliate, glandular dotted beneath. Inflorescences axillary or terminal, racemelike, dense or few-flowered; bracts foliaceous, persistent, surrounding the flowers; calyx campanulate, 5-lobed, lobes subequal, glandular; corolla small, yellow, standard obovate, auriculate, wings oblong, keel falcate, stamens diadelphous, anthers uniform; ovary 2-ovuled, style filiform, stigma capitate, small. Legume oblong-ovoid, inflated, dehiscent, style oblique and persistent; seeds 2, globose.

TYPE SPECIES: *Hedysarum strobiliferum* L. = *Flemingia strobilifera* (L.) Aiton f.

A predominantly Asian genus of about 40 species, many of them with trifoliate leaves.

NOTE: The trifoliate species *Flemingia macrophylla* (Willd.) Merr. as *Moghania* was collected in Martinique by Belanger in 1860 and by Duss in 1896 but apparently has not persisted. This may have been grown at the St. Pierre botanical garden.

Flemingia strobilifera (L.) Aiton f., Hortus Kew. 4: 350. 1812. FIGURE 183.

Basionym: *Hedysarum strobiliferum* L., Sp. Pl. 2: 746. 1753.

Type: Fl. Zeyl. 287, t. 3.

Syn.: *Moghania strobilifera* (L.) J. St. Hil., J. Bot. Agric. 1: 62. 1813.

Shrub to 2 m tall. Stipules lanceolate, 3-4 mm long, striate; petioles 1-2 cm long; leaflet obovate to ovate, 9.5-15 cm long, 4-9 cm wide, apex acute, base truncate to cuneate, glabrous above, glandular dotted and villous beneath, margins entire, revolute. Inflorescence to 15 cm long, pedicels 2-3 mm long, flowers 1-2 per node, bracts obovate to cordate, 1.5-2 cm long, 8-12 mm wide, papery, persistent, enclosing the flowers; calyx 4-5 mm long; standard orbicular, 5-6 mm long, 7-8 mm wide, slightly clawed. Legume oblong, inflated, 8-10 mm long, 3-5 mm wide, dehiscent, the valves twisting; seeds 2, ovoid, 3 mm long, brown-black with red mottling.

GENERAL DISTRIBUTION: Native to Asia including China and Malesia but introduced and established in many tropical countries. Central America, South America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Sainfoin du bengale, wild hops, zeb care, luck plant.

GALACTIA P. Browne

Galactia P. Browne, Civ. Nat. Hist. Jamaica 298. 1756.

Perennial trailing or climbing herbs. Stipules caducous; leaves alternate, pinnate or digitately trifoliate or unifoliate, stipels present. Inflorescence axillary and terminal, racemose, nodose, flowers mostly pink or white, paired or fascicled; calyx dentate, 4-toothed, 2 upper teeth fused; standard ovate or orbicular, wings narrow, obovate, adherent to the keel; stamens diadelphous, anthers uniform but alternating in length; ovary pubescent, ovules several, style filiform, glabrous, curved, stigma capitate. Legume linear, straight or slightly curved, compressed, often diagonally striate, dehiscent by 2 twisting valves, seeds often separated by false partitions, seeds ovoid, dark brown, hilum small, oval.

TYPE SPECIES: *Clitoria galactia* L. = *Galactia pendula* Pers.

A genus of 50 species most abundant in the New World but general in the tropics. The West Indian species are in need of a complete revision.

REFERENCE: I. Urban, Symb. Antill. 2: 307-335. 1901.

NOTE: Vélez (p. 101) reported one of his own collections to be *Galactia pendula* Pers., a Jamaican endemic, in Barbados. The record cannot be verified.

KEY TO THE SPECIES

1. Leaves unifoliate, orbicular *G. nummularia*
1. Leaves 3-foliate.
 2. Standard 16-26 mm long, mature inflorescence over 14 cm.
 3. Standard 24-36 mm long, red, keel and wings equally wide; legume 1 cm wide *G. rubra*
 3. Standard 16-18 mm long, purple or blue-violet, keel wider than wings; legume 6-7 mm wide *G. longiflora*
 2. Standard 7-15 mm long; inflorescence 2-7 cm long.
 4. Leaflets linear; flowers usually solitary; legume 4-5 mm wide *G. longifolia*
 4. Leaflets broader; flowers numerous; legume 5-9 mm wide.
 5. Leaflets ovate, ovate-oblong to oblong-lanceolate; legume 4-5.5 mm wide.
 6. Standard 10 mm long *G. albiflora*
 6. Standard 12-15 mm long *G. dubia*
 5. Leaflets oval to oval-elliptic.
 7. Legume 5-5.5 mm wide; standard 12-15 mm long *G. dubia*
 7. Legume 6-9 mm wide; standard 8-9 mm long *G. striata*

Galactia albiflora Urban, Symb. Antill. 2: 316. 1900.

Type: Guadeloupe, Duss 3925.

Climbing herb. Stipules narrowly lanceolate-subulate, 1.5-2 mm long; petioles 5-10 mm long; leaflets 3, ovate-oblong to oblong-lanceolate, 1-3 cm long, 0.6-1 cm wide, apex obtuse to short mucronate, base obtuse to rounded, pilose on median nerve above, rest glabrous, short appressed pilose below. Inflorescence 2-3 cm long, 4-8 cm loosely flowered, pedicels 2.5-3 mm long, in fruit to 5 mm; calyx 7-7.5 mm long, teeth lanceolate-acuminate, 3 × tube; corolla white, standard 10 mm long, 6-7 mm wide, obovate, wings and keel to 10 mm; ovary 18-ovulate. Legume 7-8 cm long, 5 mm wide, appressed pilose, curved above.

GENERAL DISTRIBUTION: Endemic to Guadeloupe.

DISTRIBUTION IN LESSER ANTILLES: Known only from the type collection, which may eventually be referred to *G. striata*.

***Galactia dubia* DC., Prodr. 2: 238. 1825.**

Type: Guadeloupe, *Bertero*.

Syn.: *Galactia dubia* DC. var. *typica* Stehlé & Quentin, Fl. Guad. 2: 110. 1948.

Galactia dubia DC. var. *angustata* Urban, Symb. Antill. 2: 318. 1900. (Syntypes: Antigua, *Wulschlägel 130* in part; Guadeloupe, *Duchassaing s.n.*, *Duss 3023b*.)

Woody climber. Stipules lanceolate to narrowly lanceolate, 2-3 mm long; petioles 1-4 cm long; leaflets 3, oval-elliptic to obovate, 2-4 cm long, 1.5-2 cm wide, apex rounded and emarginate or short apiculate, base obtuse to rounded, drying brown above, shining, anastomose-reticulate, pilose below. Peduncle 0.5-4 cm long, few-flowered 1-5 cm long; pedicels 3-4 mm, fruiting 6 mm; calyx 7-8 mm long, teeth 2.5-3 × tube, corolla rose to purple drying yellow, standard obovate to orbicular-obovate 12-15 mm long, 9-10 mm wide, keel and wings 12-14 mm long; ovary 12-14-ovulate. Legume 4-5 cm long, 5-5.5 mm wide, curved above, pilose, seeds 3.5-5 mm long, 2-3.5 mm wide, dark brown.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!.

***Galactia longiflora* Arn. in Wight & Arn., Prodr. Fl. Ind. 1: 206. 1834.**

Type: St. Vincent, "herb. Arn.," without collector cited.

Syn.: *Galactia longiflora* Arn. var. *mollicoma* Urban, Symb. Antill. 2: 311. 1900. (Syntypes cited.)

Climbing herb to 5 m long. Stipules setaceous, 3-4 mm long; petioles 2-7 cm long; leaflets oblong to elliptic, 4-6 cm long, 2-3.5 cm wide, apex acute or nearly obtuse, base rounded, sparsely pilose below; calyx pilose, 11-12 mm long, teeth as in last; corolla purple; standard 16-18 mm long, 7-7.5 mm wide, obovate to narrowly obovate, claw 4-4.5 mm long, wings 1.5 mm shorter than keel, 15-18 mm long; keel 16-18 mm long, ovary 15-17-ovulate. Legume 6-7 cm long, < 7 mm wide, pilose; seeds obliquely obovate to subreniform 3-4 mm long, 2-2.5 mm wide, pale to olive-brown, or black, shining.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, St. Kitts, Guadeloupe, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

***Galactia longifolia* (Jacq.) Benth. Ann. Weiner Mus. Naturgesch. 2: 127. 1838.**

Basionym: *Galega longifolia* Jacq., Collectanea 2: 349, 1789, Icon. Pl. Rar. 3: 14, t. 572. 1789.

Type: *ibid.* t. 572.

Syn.: *Galactia angustifolia* Griseb., Fl. Brit. W. Indian Is. 194. 1860. Duss, Fl. Phan. Antill. Franç. 210. 1897, not Kunth.
Galactia sagoti Duchass. et Walp., Linnaea 23: 739. 1850. (Type: Guadeloupe.)

Climber from perennial base. Stipules lanceolate, subulate-acuminate, 2.5-3 mm long; petioles 0.5-1 cm long; leaflets 3, oblong-linear to linear, utrinque rotund, 2.5-5 cm long, 0.3-1 cm wide, apex short apiculate to emarginate, both sides pilose to sericeous. Peduncles 2-3.5 cm long, flowers 1 to few, pedicels 1-2 mm long; calyx 6-7 mm long, teeth 2.5-3 × tube; corolla rose to purple; standard obovate 7-8 mm long, 3.5-4 mm wide, claw 1-1.5 mm; wings and keel 7 mm long; ovary 9-10-ovulate. Legume 3-5 cm long, 4-5 mm wide, pilose, straight; seeds ovate black, olive to green shiny, 3.5-4 mm long, 2-2.4 mm wide.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua, St. Eustatius!, St. Kitts!, Guadeloupe, Marie Galante, Barbados.

COMMON NAMES: Pois-savane, corde à violon, pois-ficelle.

Galactia nummularia Urban, Symb. Antill. 6: 12. 1909.

Type: St. Martin, *Boldingh* 2428b.

Climber, lower part woody. Stipules lanceolate-subulate 1.5-2 mm long; petioles 0.5-1 cm long; leaflets solitary, orbicular rarely oval-orbicular 0.7-1.5 cm dia., apex rounded to emarginate, base rounded to subtruncate, coriaceous rigid, glabrous above, appressed pilose below; peduncle 1-flowered, pedicel 3-4 mm long, flowers yellow-white, calyx 7 mm long, teeth 2 × tube, standard orbicular-ovate 12 mm long, 9 mm wide, claw 1 mm, wings and keel ca. 3.5 mm long, ovary 12-ovulate. Fruit unknown.

GENERAL DISTRIBUTION: Endemic to St. Martin.

DISTRIBUTION IN LESSER ANTILLES: Known only from original collection.

Galactia rubra (Jacq.) Urban, Symb. Antill. 2: 319. 1900.

FIGURE 184.

Basionym: *Dolichos ruber* Jacq., Select. Stip. Amer. Hist. 204, t. 123. 1763.

Type: *ibid.* t. 123.

Syn.: *Glycine sericea* Willd., Sp. Pl. 3(2): 1059. 1802. (Type: Martinique, *Isert s.n.* (Herb. Willd. 13492).)

Dioclea jacquiniana DC., Prodr. 2: 403. 1825, illegit.

Vine to 4 m woody at base. Stipules subulate to lanceolate-subulate 2.5-4 mm long; petioles 1-7 cm long; leaflets 3, ovate, ovate-oblong to ovate-elliptic, 3-7 cm long, 1.2-3.5 cm wide, apex acute, rounded or emarginate, base rounded to subcordate, pilose below. Inflorescence peduncle 2.5-10 cm, flowering part 4-30 cm long, pedicels 4-8 mm; calyx 10-15 mm long, teeth 2 × tube, corolla red, standard 24-26 mm long, 10-11 mm wide, obovate-elliptic, claw 2.5-3 mm long; wings 2.5-3 mm shorter, 21-22 mm long, keel 24-25 mm, ovary 10-12-seeded. Legume 5-7.5 cm long, 6-9 mm wide, almost straight, curved above, pilose; seeds obliquely obovate, 5-6 mm long, 3.5-4 mm wide, brown-black, shining.

GENERAL DISTRIBUTION: Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!.

COMMON NAMES: Pois roux, liane-ficelle, pois bâlard.

Galactia striata (Jacq.) Urban, Symb. Antill. 2: 320. 1900.

Basionym: *Glycine striata* Jacq., Hort. Bot. Vindob. 1: 32, t. 76. 1770.

Type: *ibid.* t. 76. Cultivated plant.

Syn.: *Galactia striata* (Jacq.) Urban var. *tomentosa* (Bertol.) Urban, Symb. Antill. 2: 321. 1900.

Galactia striata (Jacq.) Urban var. *caribaea* Urban, Symb. Antill. 2: 322. 1900.
(Type: Guadeloupe, Duss 2656.)

Galactia striata (Jacq.) Urban var. *berteriana* (DC.) Urban, Symb. Antill. 2: 322. 1900.

Galactia berteriana DC., Prodr. 2: 238. 1825. (Type: Puerto Rico, Bertero.)

Perennial climber. Stipules subulate 2-4 mm long; petioles 1.5-3.5 cm long, leaflets 3, ovate-elliptic 3.5-6 cm long, 2-3 cm wide, apex obtuse and mucronulate, base rounded, soft velutinous to pilose pubescent below. Inflorescence 3-15 cm, pedicels 2-2.5 mm, several-flowered, calyx 7 mm long, teeth $2.5 \times$ tube, standard purple striate, obovate, 8-9 mm long, 5 mm wide, claw 1 mm long; ovary ca. 11-ovulate. Fruit straight, 4-8 cm long, 6-9 mm wide; seeds reniform, yellowish, variegated.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Barbuda!, Montserrat!, Guadeloupe!, Les Saintes!.



FIGURE 184 (left). *Galactia rubra*, x 0.3. FIGURE 185 (right). *Gliricidia sepium*, x 0.3.

GENERAL DISTRIBUTION: American tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Barbuda!, Montserrat!, Guadeloupe!, Les Saintes!.

GLIRICIDIA Kunth

Gliricidia Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 309. 1824 (folio ed.).

Trees. Stipules small, leaves alternate, imparipinnate, leaflets entire, exstipulate. Inflorescences axillary, often fasciculate, racemose, generally appearing during leafless condition, bracts and bracteoles small and caducous or absent; calyx short campanulate, truncate or with short teeth; standard orbicular, reflexed, short clawed; wings oblong-lanceolate, erect, free, with basal auricle; keel strongly curved; stamens diadelphous, anthers similar; ovary stalked, ovules several, style inflexed, glabrous or sparsely pubescent, stigma capitate. Legume stipitate, linear-oblong, compressed, dehiscent into coriaceous, twisting valves; seed rounded, compressed.

TYPE SPECIES: *Robinia sepium* Jacq. = *Gliricidia sepium* (Jacq.) Kunth.

A genus of about 9 species of Central and South America. One, *G. sepium*, widely cultivated in tropical areas.

Gliricidia sepium (Jacq.) Kunth ex Walp., Repert. 1: 679. 1842. FIGURE 185.

Basionym: *Robinia sepium* Jacq., Enum. Syst. Pl. 28. 1760.

Type: Colombia, Jacq., Select. Stirp. Amer. Hist. t. 179, f. 101. 1763.

Tree to 10 m tall. Stipules ovate 2 mm long; petioles 5-6 cm; leaflets 7-15, oblong or elliptic-oblong, 3-6.5 cm long, 1.8-2.5 cm wide, apex bluntly acute, base rounded, glabrous above, finely pubescent below, often with dull purple spots. Racemes 3-12 cm long, pedicels 0.5 cm long; calyx 4.5-6 mm long, narrowed at base; standard orbicular, 1.7-2.2 cm long, 1.4 cm wide, rose-pink with yellow center and greenish stripes; wings pink, keel yellow and white. Legume 7.5-15 cm long, 1.5-1.7 cm wide, glabrous; seeds lenticular, round in outline, 1 cm long, 9 mm wide, purple-brown.

GENERAL DISTRIBUTION: Native of South America but widely cultivated in American tropics and elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Barbuda!, Antigua!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

COMMON NAMES: Quickstick, Nicaragua shade tree, glory cida, gliricidia, glorisida.

NOTE: Commonly used as a living fence post, as cuttings of considerable diameter will root quickly. The rooted plants are then cut off above the fence level and several to many long arching shoots develop. The plants commonly flower profusely in leafless condition.

INDIGOFERA L.

Indigofera L., Sp. Pl. 2: 751. 1753.

Perennial herbs or small woody shrubs. Stipules subulate or setaceous, leaves alternate, imparipinnate or trifoliolate, leaflets entire, commonly with 2 or 1 armed "malpighiaceus" hairs, stipels small. Inflorescence axillary, racemose, spicate, flowers small, usually red or pink, solitary, bracteate, calyx small, obliquely 5-toothed, these subequal, standard orbicular or obovate, sessile or short-clawed, apex rounded, wings oblanceolate to linear, slightly adherent to keel, keel obtuse or acuminate; stamens diadelphous, anthers uniform and gland-tipped, ovary sessile, ovules 1 to several, strigose, style inflexed, stigma capitate. Legume linear, terete, curved or straight, 4-angled or compressed or a globose pod, septate between the seeds; seeds globose to prismatic.

TYPE SPECIES: *Indigofera tinctoria* L.

A large genus of 700 species of warm temperate and tropical areas of the world.

NOTE: The following species were once cultivated and apparently have not persisted and are not represented by recent collections.

CULTIVATED TAXA

Indigofera guatimalensis Mociño & Sessé, Martinique, Duss 1059.

Indigofera kurtzii (Kuntze) Harms, St. Vincent, H. H. & G. W. Smith 1189. (K).

Indigofera stipularis Link, Guadeloupe, Rodriguez s.n. (P).

Indigofera viscosa Lam., Martinique, Belanger 896 (P) ca. 1860.

KEY TO THE SPECIES

1. Leaflets alternate, flowers in spikes over 3 cm which in fruit reach 15 cm, fruit 1-2.5 cm, plants prostrate *I. spicata*
1. Leaflets opposite.
 2. Herbs with dense spreading hairs on all parts, and glandular, fruit straight 1-1.7 cm long *I. hirsuta*
 2. Herbs with fine appressed hairs, not glandular.
 3. Fruit 1-1.5 cm long, curved *I. suffruticosa*
 3. Fruit 3-3.5 cm, slightly curved, mostly at stylar end *I. tinctoria*

Indigofera hirsuta L., Sp. Pl. 2: 751. 1753.

Type: India, syntypes cited.

Annual to 1.5 m tall, stems brown villous-hirsute. Stipules setaceous, 5-10 mm long, villous; leaves 10-15 cm long, leaflets 5-7(-11), elliptic-oblong to obovate, 2-4 cm long, loosely pubescent, gray-green below. Inflorescences 20-30 cm long, longer than the leaves, densely flowered, flowers 4-5 mm long, rose, salmon or brick red, white pubescent outside. Legume straight, deflexed, 1.2-2 cm long, 2 mm wide, with strong suture, densely spreading hairy, 6-8-seeded, seeds 1.5 mm long, 1 mm wide, slightly pitted.

GENERAL DISTRIBUTION: Introduced into the New World.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, St. Lucia, St. Vincent!.

Indigofera spicata Forsskål, Fl. Aegypt.-Arab. 138. 1775.

Type: Arabia, not seen.

Syn.: *Indigofera hendecaphylla* Jacq., Collectanea 2: 358. 1789. (Type: Africa, Icon. Pl.

Rar. 3: t. 570. 1789.)

Indigofera endecaphylla authors, sphalma.

Prostrate to ascending herb from thick rootstock, stems to 60 cm long, pubescent, flattened. Stipules lanceolate, 6-8 mm long, leaflets 7-11 alternate, obovate or oblong-oblancoate, obtuse or rounded at apex, cuneate at base, 1.3-3 cm long, with rough appressed pubescence. Inflorescence to 15 cm in fruit, flowers 5 mm long in dense many-flowered clusters, crimson-red. Fruit reflexed, linear, straight, 1.1-2.5 cm long, 2 mm thick, appressed pubescent with thick margins, 5-8-seeded, seeds 1.5 mm long, 1 mm thick.

GENERAL DISTRIBUTION: Widespread in Asia and Africa, introduced to the New World.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Lucia.

Indigofera suffruticosa Miller, Gard. Dict. ed. 8, no. 2. 1768. FIGURE 186.

Type: Herb. Miller (BM) prob. cultivated at Chelsea.

Syn.: *Indigofera anil* L., Mant. Pl. 272. 1771. (Type: India.)

Indigofera divaricata Jacq., Pl. Hort. Schoenbr. pl. 365. 1798. (Type: *ibid*, pl. 365.)

Shrub to 2 m tall, stems angled, pubescent. Stipules subulate, 3 mm long, leaflets 9-17, narrowly oblong, elliptic, opposite, to 1.5-2.5 cm long, 9 mm wide, apex rounded to subacute, mucronate, base narrowed, pubescent both sides. Inflorescence sessile, 2-4.5 cm long, shorter than the leaves, flowers 5 mm long, pink or orange. Legume 1-1.5 cm long, strongly curved, brown, margined, finely pubescent, 3-7-seeded, seeds 2 mm long, 1 mm thick.

GENERAL DISTRIBUTION: Native of tropical America, southern United States, Mexico, Central America, Greater Antilles, South America, and introduced into the Old World.

DISTRIBUTION IN LESSER ANTILLES: Anguilla, St. Barts!, Antigua!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Indigo, Guatemala indigo, ti cafe.

Indigofera tinctoria L., Sp. Pl. 2: 751. 1753.

Type: India, syntypes cited.

Erect or sprawling shrub, to 1.5 m. Stipules subulate or setaceous, 2-3 mm long; leaflets 9-19, oblong-elliptic, opposite, 1-2.5 cm long, 0.6-1.2 cm wide, apex rounded, base narrowed, usually glabrous above, pubescent below. Inflores-



FIGURE 186 (upper left). *Indigofera suffruticosa*, x 0.35. FIGURE 187 (upper right). *Lonchocarpus violaceus*, x 0.35. FIGURE 188 (lower left). *Lablab purpureus*, x 0.35. FIGURE 189 (lower right). *Machaerium lunatum*, x 0.35.

cence sessile, 3-7 cm long, flowers 5-7 mm long, pink, reddish yellow or greenish. Legume linear, straight or slightly curved toward apex, 3-3.5 cm long, 2 mm wide, glabrous or sparsely pubescent, seeds 10-12, seeds 2 mm long, 1.5 mm thick.

GENERAL DISTRIBUTION: Native of Old World introduced and naturalized in New World.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Kitts!, Montserrat!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Barbados!.

COMMON NAMES: Indigo, French indigo.

LABLAB Adans.

Lablab Adans., Fam. Pl. 2: 325. 1763.

Climbing or twining trailing herb. Stipules small, not produced below point of insertion, persistent; leaves alternate, leaflets 3, pinnate, stipellate. Inflorescence axillary, racemelike, the flowers in clusters from tubercles; calyx campanulate, bilabiate, the upper lip entire or emarginate, the lower lip 3-lobed; standard orbicular, mostly reflexed, auriculate with two callosities or appendages on inner face; wings obovate; keel narrow, incurved at right angle; stamens diadelphous, anthers uniform; ovary flattened, style stiff, flattened, sharply curved, stigma terminal. Legume oblong to falcate, tipped with persistent style, upper margin verrucose, spongy between the seeds; seeds ovoid, compressed, black, hilum white, linear with rim-aril.

TYPE SPECIES: *Dolichos lablab* L. = *Lablab purpureus* (L.) Sweet.

A genus of a single but variable species found throughout the tropics.

REFERENCE: B. Verdcourt, Kew Bull. 24: 409-412. 1970.

Lablab purpureus (L.) Sweet, Hort. Brit. ed. 1, 481. 1826.

FIGURE 188.

Basionym: *Dolichos lablab* L., Sp. Pl. 2: 725. 1753.

Lectotype: Alpini, De plantis Aegypti liber . . . 74, t. 75. 1640.

Syn.: *Dolichos purpureus* L., Sp. Pl. ed. 2, 2: 1021. 1763. (Type: India.)

Dolichos lablab L. var. *albiflorus* DC., Prodr. 2: 401. 1825. (Type: not designated.)

Lablab niger Medikus in Vorles., Churpf. Phys. Ges. 2: 354. 1787. (Type: not determined.)

Lablab vulgaris Savi, Nuov. Giorn. Lett. 3, 8: 226, f. 8 a-c. 1824. (Type: not determined.)

Vigorous climbing or twining herb, stems to 5 m long, glabrous or pubescent. Stipules ovate, 4-6 mm long, striate; petioles 8-18 cm long, leaflets triangular-ovate to rhomboidal, 7-10 cm x 6.5-9 cm, apex acuminate, base cuneate to truncate, glabrous or pubescent. Inflorescence to 25 cm long, corolla white, blue, purple, < 1.5 cm, keel often white with purple tip. Legumes broadly oblong, 5-10 cm long, 1.5-4 cm wide, pubescent or glabrous, upper suture verrucose;

seeds 3-5, ovoid black or white, 0.5-1.7 cm long, 4-6 mm wide, 3-5.5 mm thick; aril 0.6-1.4 cm long, 1.5-2 mm wide.

GENERAL DISTRIBUTION: Probably a native of Africa but introduced and established as a food and forage plant in most tropical countries.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Bonavist, black bean.

LONCHOCARPUS Kunth

Lonchocarpus Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 300. 1824, nom. cons.

Trees. Stipules generally caducous; leaves alternate, imparipinnate, the leaflets opposite. Inflorescence terminal and axillary, racemose or paniculate; flowers large, pink, purple or white; calyx campanulate, short-toothed or truncate; standard orbicular to obovate, wings oblong or falcate, keel straight to arcuate; stamens monadelphous, anthers uniform; ovary short-stalked, ovules 2-several, style filiform, curved, stigma small, terminal. Legume oblong to linear, flat, often papery, indehiscent; seeds compressed.

TYPE SPECIES: *Robinia sericea* Poiret = *Lonchocarpus sericeus* (Poiret) DC., type cons.

An American genus of 70 species with a few in Africa and Madagascar.

REFERENCE: Pittier, Contr. U. S. Natl. Herb. 20: 37-97. 1917.

KEY TO THE SPECIES

1. Flowers less than 1 cm long, calyx 2-2.5 mm long, bracteoles triangular-subulate; fruit thin-textured; leaflets thinly puberulous below *L. pentaphyllus*
1. Flowers more than 1 cm long, calyx 3 mm long or longer; fruit woody.
 2. Standard glabrous; leaves glabrous below, pellucid-punctate, bracts borne at the middle of the upper peduncle *L. violaceus*
 2. Standard pubescent; leaves sparsely to densely pubescent below without pellucid punctations, bracts borne immediately below the calyx.
 3. Lower or common peduncle minute or wanting, leaves short golden pubescent below, bract minute < 1 mm *L. broadwayi*
 3. Lower or common peduncle evident, often equalling the upper peduncles in length, bracts conspicuous 2-3 mm broad *L. domingensis*

Lonchocarpus broadwayi Urban, Symb. Antill. 5: 366. 1908.

Syntypes: Grenada, *Broadway 1511, 1658, 1752*.

Tree. Stipules obliquely orbicular, tomentose, 2.5-3 mm dia., scarcely deciduous; petioles 2-5 cm, leaflets 5-7, ovate to oval-elliptic, 5-8 cm long, 3-4 cm wide, apex short and obtusely acuminate, base rounded to obtuse, chartaceous, short pilose below; inflorescence 4-10 cm long, bracts ovate 1 mm long, pedicels

2-6 mm, flowers blue, calyx appressed pilose, teeth short triangular, tube 4 mm; standard triangular-pentagonal, outside short pilose, not auriculate, 14 mm long; ovary linear, appressed pilose, 6 ovulate; fruit lanceolate to linear-lanceolate, 5-7 cm long, 1.3-1.8 cm wide, stipe 5-7 mm long, subcoriaceous, 1-2-seeded, short and densely pilose, seeds ovate brown-black, 10 mm long, 7 mm wide.

GENERAL DISTRIBUTION: Known only from Grenada.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

NOTE: Known only from the original collections.

Lonchocarpus domingensis (Pers.) DC., Prodr. 2: 259. 1825.

Basionym: *Dalbergia domingensis* Pers., Syn. Pl. 2: 276. 1807.

Type: Santo Domingo, *Turpin*.

Syn.: *Lonchocarpus sericeus* (Poirot) DC., Prodr. 2: 260. 1825.

Robinia sericea Poirot in Lam., Encycl. Suppl. 2: 445. 1811. (Type: America, Herb.

Jussieu from *Vahl s.n.*, probably from Montserrat or St. Kitts.)

Tree 6-13 m high. Leaflets 1-3 pairs, suborbicular to oblong-elliptic, obtuse to short and blunt acuminate, broadly rounded at base, 5-15 cm x 4-8.5 cm, persistently sericeous below. Lower peduncle shorter than the upper, densely golden pubescent; bracteoles immediately subtending the calyx, mostly 2-2.5 mm broad, corolla bright rose-purple, standard white at base. Fruit to 10 cm x 2-2.5 cm, persistently pubescent, 4-7-seeded.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique!.

NOTE: Adams (Fl. Jamaica pp. 348, 349. 1972) recognizes *L. domingensis* and *L. sericeus* suggesting that the latter species occurs primarily in the Lesser Antilles in Guadeloupe and Martinique and occurs in the Greater Antilles only in Jamaica, where the recorded flowering times do not coincide. I am unable to distinguish two species on the characters used by Adams and from the limited amount of material available.

Lonchocarpus pentaphyllus (Poirot) DC., Prodr. 2: 259. 1825.

Basionym: *Dalbergia pentaphylla* Poirot in Lam., Encycl. Suppl. 2: 445. 1811.

Type: Puerto Rico, *Ledru*.

Syn.: *Lonchocarpus latifolius* DC., Prodr. 2: 260. 1825.

Tree 5-12 m high. Leaflets 2-4 pairs, lanceolate to oblong, < 20 cm x 3.5-9 cm, apex acuminate, base mostly asymmetrical, rounded and acute, minutely golden pubescent below. Inflorescence < 12 cm, puberulous, corolla pink, 6-8 mm long. Fruit papery, 4-9 cm x 2 cm, 1- rarely 2-seeded.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Guadeloupe, Martinique, St. Lucia!.

COMMON NAME: Savonnette.

NOTE: *Lonchocarpus latifolius* DC. is a legitimate new species name and not a combination of *Amerimnon latifolium* Willd., which is an illegitimate renaming of *A. pinnatum* Jacquin. Both names are clearly excluded by De Candolle.

Lonchocarpus violaceus (Jacq.) DC., Prodr. 2: 259. 1825.

FIGURE 187.

Basionym: *Robinia violacea* Jacq., Enum. Syst. Pl. 28. 1760.

Type: Cartagena, Colombia, Select. Stirp. Amer. Hist. 210, t. 177, f. 49. 1763.

Syn.: *Lonchocarpus benthamianus* Pittier, Contr. U. S. Natl. Herb. 20: 86. 1917. (Syn-types: Guadeloupe, Duss 2663; Martinique, Duss 1091, Hahn 1123; Barbados, Waby 9, 106.)

Lonchocarpus caribaeus Urban, Repert. Spec. Nov. Regni Veg. 17: 156. 1921. (Type: Guadeloupe, Duss 2663.)

Tree to 15 m; leaflets 3-4 pairs, ovate, elliptic or elliptic-ovate, 4-10 cm long, 2.5-4 cm wide, apex bluntly acuminate, base rounded, noticeably dark punctate with translucent glands. Inflorescence to 20 cm long, few- to many-flowered, pedicels 2-flowered; calyx 5 mm long; standard pink-purple splotted with yellow and white; standard 1.5 cm long. Legume pale straw-colored, 6-8 cm long, 3-4 cm broad, flattened, seeds 1-3.

GENERAL DISTRIBUTION: Colombia, Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua, St. Eustatius!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados.

COMMON NAMES: Savonette petite feuille, savonette, greenheart, savonette le ba.

NOTES: Both Pittier and Urban independently concluded that *Robinia violacea* Jacquin could not be identified and probably was not a species of *Lonchocarpus*. Urban, unaware of Pittier's publication, designated as the type a specimen also cited by Pittier. A recent specimen from Cartagena has the leaf shape described by Jacquin and has been annotated by Sousa as *Lonchocarpus violaceus* (Jacq.) DC. No Jacquin material has been located and his second publication of the name in Select. Stirp. Amer. Hist. is illustrated with a drawing of two flowers, a hardly acceptable lectotype. Sousa has annotated some specimens available to me with an unpublished varietal combination based on *Lonchocarpus benthamianus*, suggesting he distinguishes the Lesser Antillean material from the typical variety in Colombia. Regrettably, most of the A/GH material has been on loan to Mr. Sousa for many years and a full record of the range of the taxon cannot be given. It seems desirable at this time to accept *Lonchocarpus violaceus* (Jacq.) DC. as the correct name for this taxon and to suggest that a neotype be chosen if no specimen by Jacquin is located. However, if the Lesser Antillean plants are distinct at the species level, the name *Lonchocarpus ? roseus* (Miller) DC., Prodr. 2: 260. 1825, must be considered. The basionym is *Robinia roseus* Miller, Gard. Dict. ed. 8, no. 4. 1768, which is based on Plumier's polynomial *Pseudo-acacia latifolia, flore rosea* (Plum., Sp. 19, Icon. mss. 7, t. 146). Urban (Repert. Spec. Nov. Regni Veg. 15: 315, 316. 1918) also discussed this taxon as *Lonchocarpus ? roseus* and cited specimen #782 in the Surian herbarium and

concluded it was either *Lonchocarpus domingensis* (Pers.) DC. or near the related *Lonchocarpus sericea* (Poir.) DC. Sousa, in a letter for Nicolson (May 1984), reported "Dra. Alicia Lourteig . . . sent to me tracings of two polynomials of Father Plumier, from these — one corresponds to *Lonchocarpus benthamianus* Pittier. This is '*Pseudo acacia latifolia flore rosea*' that was the basis of *Robinia rosea* Miller, Gard. Dict. ed. VIII. n. 4. 1768, that later (1825) De Candolle made the combination in *Lonchocarpus*; this plant is from Guadalupe (Guadeloupe?)."

MACHAERIUM Pers.

Machaerium Pers., Syn. Pl. 2: 276. 1807, nom. cons.

Shrubs or woody vines. Stipules spinescent. Leaves imparipinnate, leaflets alternate. Inflorescence terminal or axillary, panicles or racemes, flowers purple to white, bracts small. Calyx subtruncate, with 5 small teeth; standard orbicular or broadly oval, pubescent outside; wings oblong, keel incurved; stamens monadelphous, ovary short stipitate, ovules 1 or 2, style filiform, incurved, stigma terminal. Legume curled in a circle or falciform, coriaceous, single seed reniform, flat.

TYPE SPECIES: *Nissolia ferruginea* Willd. = *Machaerium ferrugineum* (Willd.) Pers.

A genus of 150 species of tropical America.

Machaerium lunatum (L. f.) Ducke, Arch. Jard. Bot. Rio de Janeiro 4: 310. 1925. FIGURE 189.

Basionym: *Pterocarpus lunatus* L. f., Suppl. Pl. 317. 1782.

* Type: Locality unspecified, Plum., Pl. Amer. t. 201, f. 2.

Syn.: *Drepanocarpus lunatus* (L. f.) G. Meyer, Prim. Fl. Esseq. 238. 1818.

Shrub commonly with climbing branches. Stipular spines curved, to 1 cm long; petioles 1-2 cm long, leaflets 5-7, oblong or oblanceolate 2-5 cm long, 0.5-2 cm wide, apex rounded and mucronate, base narrowed, membranous, glabrous. Racemes axillary, or terminal panicles 6-15 cm long; calyx 5 mm long, tomentose; corolla purple, 7-9 mm long. Legume recurved-orbicular, 2-4 cm dia., glabrous, somewhat rugose.

GENERAL DISTRIBUTION: Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Croc-chien, mangle, mangle-medaille, manatee bush.

NOTE: Anderson reported in his manuscript that this plant was native to St. Lucia and the Guianas, and his plant in the St. Vincent garden was introduced from South America.

MACROPTILIUM Urban

Macroptilium Urban, Symb. Antill. 9: 457. 1928.

Climbing or trailing herbs. Stipules nervose, not produced below attachment; leaves alternate, leaflets 3, pinnate stipels present. Inflorescence axillary, on stiff, long peduncles, flowers paired at the nodes; calyx campanulate or cylindric with 5 equal or subequal lobes; flowers purplish red, standard orbicular, reflexed, clawed with 2 basal auricles, wings long-clawed, exceeding the keel, keel long-clawed, usually curved above, fused to staminal tube; stamens diadelphous, anthers uniform; ovary pubescent, flattened, style thickened at the base, abruptly curved and becoming thinner. Legume linear, non-septate, dehiscent, valves twisting; seeds numerous, small.

TYPE SPECIES: *Phaseolus lathyroides* L. = *Macroptilium lathyroides* (L.) Urban.

A genus of 20 species of the New World now cultivated elsewhere.

KEY TO THE SPECIES

Plants mostly trailing, inflorescence stiff, erect; leaflets lobed *M. atropurpureum*
Plants mostly herbaceous climbers; inflorescence lax, leaflets not lobed . *M. lathyroides*

Macroptilium atropurpureum (Mociño & Sessé) Urban, Symb. Antill. 9: 457. 1928.

Basionym: *Phaseolus atropurpureus* Mociño & Sessé ex DC., Prodr. 2: 395. 1825.

Type: Not determined.

Twining and climbing herb. Stipules ovate-lanceolate, striate, 3-4 mm long; petioles 3-5 cm long; leaflets ovate to ovate-rhombic, lobed near the base, 3-6 cm long, 2-4 cm wide, laterals oblique, apex acute, base obtuse but ultimately subcordate, white, silky pubescent below. Inflorescence to 15 cm long, flowers few, near the apex, 1.5-2.5 cm long, corolla dark red-purple. Legume linear, 7-8 cm long, 4.5 mm wide, appressed pubescent, valves twisting tightly on dehiscence, seeds 12-15, ellipsoid, 4 mm long, mottled brown and black.

GENERAL DISTRIBUTION: Native of tropical America introduced elsewhere in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique, St. Lucia!

COMMON NAMES: Sirato, red pea.

Macroptilium lathyroides (L.) Urban, Symb. Antill. 9: 457. 1928. FIGURE 190.

Basionym: *Phaseolus lathyroides* L., Sp. Pl. ed. 2, 2: 1018. 1763.

Type: Jamaica, Sloane, Voy. Jamaica t. 116, f. 1; typotype: Herb. Sloane 3: 83 (BM).

Syn.: *Phaseolus semierectus* L., Syst. Nat. ed. 12, 2: 481. 1767. (Lectotype: LNN 899.3.)

Macroptilium lathyroides (L.) Urban var. *angustifolium* (Benth.) Stehlé, Bull.

Mus. Hist. Nat. (Paris) ser. 2, 18: 110. 1946.

Macroptilium lathyroides (L.) Urban var. *semierectum* (L.) Urban, Symb. Antill. 9: 457. 1928.

Macroptilium lathyroides (L.) Urban var. *bustarretianum* Stehlé & Quentin, in Stehlé, Fl. Agron. Antill. Franc. 1: 68. 1957, illegit.

Erect annual or biennial, often trailing, stems to 1 m long, sparsely appressed pubescent; stipules lanceolate, striate, 5-6 mm long; petiole 1-5 cm long; leaflets 3, narrowly elliptic to ovate-lanceolate, 3-8 cm long, 1-3.5 cm wide, apex acute, base cuneate, obtuse or deltoid, glabrous above, sparsely pilose below. Inflorescences to 30 cm long, peduncles 15-20 cm long, pedicels 2-3 mm long, flowers 1.5 cm long, from swollen nodes, standard broadly oblong, to 15 mm long, crimson, brownish red; wings and keel green tinged with red. Legume linear, 7-12 cm long, 2.5-3.5 mm wide, compressed appressed pubescent, seeds 18-30, obliquely oblong, brown or marbled or black, 2-3.5 mm long.

GENERAL DISTRIBUTION: Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Pois-poison, pois-zombie.



FIGURE 190 (left). *Macroptilium lathyroides*, x 0.33. FIGURE 191 (right). *Medicago sativa*, x 0.33.

MEDICAGO L.

Medicago L., Sp. Pl. 2: 778. 1753.

Herbs. Stipules adnate to the petiole, toothed and lacinate; leaves alternate, leaflets 3, pinnate. Inflorescence axillary, racemose, short pedunculate, dense and headlike; calyx tube short, 5 teeth subequal; corolla yellow or purple, keel obtuse; stamens diadelphous, anthers uniform. Fruit bent through one or several coils, indehiscent, usually spiny.

LECTOTYPE SPECIES: *Medicago radiata* L.

A genus of 100 species of temperate Eurasia and South Africa, introduced but rarely successfully grown in the tropics.

NOTE: *Medicago polymorpha* L. as *M. hispida* Gaertn. was collected by Belanger in 1859 and 1860 on Martinique, probably at the St. Pierre Botanical Garden.

Medicago sativa L., Sp. Pl. 2: 778. 1753.

FIGURE 191.

† Lectotype: LINN 933.6.

Erect herb to 30 cm tall. Stipules linear or lanceolate, 10-15 mm long, entire or toothed at the base; petiole 10-15 mm long, leaflets obovate to linear, 2 cm long, 0.8 cm wide, apex rounded but sharply toothed, base cuneate. Corolla blue to purple, 0.5-1.1 cm long. Fruit sickle-shaped or in a spiral of 1 to several turns, reticulate-veined.

GENERAL DISTRIBUTION: Native of the Old World now widely introduced and naturalized, mostly in temperate areas.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!.

NOTES: Alexander Anderson records trying this plant for pastures before 1800. The specimen *Belanger 700* (P) was collected on Martinique in 1859 and *Stehlé 1967* from Guadeloupe was made in 1935.

MUCUNA Adans.

Mucuna Adans., Fam. Pl. 2: 325. 1763, nom. cons.

Woody climbing plants. Stipules caducous, leaves pinnately 3-foliolate, usually turning black on drying. Inflorescence fasciculate-racemose on long axillary peduncles; flowers large, purple or greenish yellow; calyx campanulate, bilabiate, the upper 2 teeth connate; standard reflexed, shorter than the wings, clawed, auriculate; wings incurved; keel equal to or longer than the wings, acute and incurved or beaked at the apex; stamens diadelphous, alternate stamens longer with basifixed anthers alternating with shorter stamens and versatile anthers; ovary sessile, villous, ovules few, style filiform, stigma terminal, capitate. Fruit oblong or linear, usually thick, coriaceous, 2-valved, the valves separating or twisting, often clothed with irritant or stinging hairs; seeds large, rounded or oblong, hilum linear, short or nearly surrounding seed.

TYPE SPECIES: *Dolichos urens* L. = *Mucuna urens* (L.) DC., type cons.

A genus of nearly 100 species in the tropics of both hemispheres. The genus *Stizolobium* P. Br. is now recognized by Alain for the species of herbaceous vines with smooth or slightly wrinkled pods and seeds with a short hilum. The floral structure, however, is comparable to that of *Mucuna* species.

M. bennettii F. Muell. is now cultivated on several islands.

REFERENCE: Fawcett and Rendle, J. Bot. **55**: 35. 1913.

KEY TO THE SPECIES

1. Leaves pubescent beneath.
 2. Flowers yellow, peduncle twice the length of the petiole or longer; fruit 10-15 cm long, 4-5 cm wide; seeds 2.5 cm dia., hilum surrounding the seed *M. sloanei*
 2. Flowers blue or purplish, peduncle at most equal to petiole; fruit 4-8 cm long, 1.5 cm wide, seeds 10-12 mm long, oblong, mottled brown and black, hilum shorter than seed *M. pruriens*
1. Leaves glabrous beneath, flowers bluish or purple, peduncle to 1 m; fruit 10-20 cm x 5 cm, seeds 3-4 cm dia., hilum surrounding the seed *M. urens*

***Mucuna pruriens* (L.) DC., Prodr. 2: 405. 1825.**

Basionym: *Dolichos pruriens* L., Syst. Nat. ed. 10, **2**: 1162. 1759.

Type: Herb. Amboin. **5**: t. 142.

Climbing herb, stems 2-3 m long. Stipules setaceous 3-4 mm, caducous; petioles 6-11 cm; leaflets ovate, the lateral oblique, 6-14 cm long, 5-9 cm wide, apex acute, acuminate or rounded, base rounded, coarsely to densely appressed silvery pubescent. Inflorescence with peduncle 2-10 cm long, flowering portion 2-10 cm long, pedicels 1.5-3 mm long; calyx tube 5-7 mm, lobes 3-9 mm; corolla dark blue-purple 3-4 cm long, standard ovate, 1.7-2 cm long; wings to 3.4 cm long, keel exceeding the wings. Fruit oblong, usually more or less S-shaped, 4-9 cm long, 1-1.5 cm wide, densely covered with brown to reddish brown irritant hairs, or these lacking; seeds oblong-ellipsoid, compressed, 1.9 cm long, 8-13 mm wide, 4-6 mm thick; hilum oblong, about 4 mm long with cream aril-rim.

GENERAL DISTRIBUTION: Widespread in tropical areas wild or cultivated.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Martinique!, Grenada!, Barbados!.

COMMON NAMES: Cowitch, pois-gratter, poil-à-gratter.

***Mucuna pruriens* (L.) DC. var. *utilis* (Wight) Burck, Ann. Jard. Bot. Buitenzorg **11**: 187. 1893.**

Basionym: *Mucuna utilis* Wight, Icon. Pl. Ind. Orient **1**: t. 80. 1838.

Type: Indonesia, not further specified.

Syn.: *Stizolobium aterrimum* Piper & Tracy, U.S.D.A. Bur. Pl. Industr. Bull. **139**: 18. 1910. (Type: Not determined.)

Mucuna aterrima (Piper & Tracy) Holland, Bull. Misc. Inform. **9**: 216. 1911.

Stizolobium pruriens (L.) Medikus in Vorles., Churpf. Phys. Ges. **2**: 399. 1787.
Mucuna derringiana (Bort) Holland, Bull. Misc. Inform. **9**: 217. 1911.
Stizolobium deeringianum Bort, U.S.D.A. Bur. Pl. Industr. Bull. **141**: 31. 1909.
(Type: Not determined.)

Corolla mostly blackish purple or lilac; fruits with or without irritant hairs. Seeds shiny black with white hilum.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, St. Lucia!, Barbados.

COMMON NAMES: Portuguese coffee, cafe brazilii, kafé go bouwo. Bengal bean (Barbados) planted as green dressing.

Mucuna sloanei Fawcett & Rendle, J. Bot. **55**: 36. 1917.

Type: Herb. Sloane **3**: 659 (BM).

Syn.: *Dolichos urens* Jacq., Enum. Syst. Pl. 27. 1760, not L. 1759. (Type: Jacq., Select. Stirp. Amer. Hist. t. 182, f. 84. 1763.)

Robust vine, high climbing, stems tomentose, hairs whitish. Stipules setaceous, 3 mm long, caducous; petioles 6-8 cm long; leaflets ovate, 7-10 cm long, apex acute, obtuse or short acuminate, base obtuse or truncate, densely silvery pubescent below. Inflorescence pendant racemes, peduncle 8 cm long, flowers congested on enlarged 2-3 cm of rachis; pedicels to 15 mm long; flowers yellow, showy, calyx 6-12 mm long; standard 2.5-3 cm long, wings and keel narrow, exserted, oblong, falcate, style appressed pubescent. Fruit oblong, mostly 2-4-seeded, 10 cm long, 4 cm wide, short-beaked, with prominent transverse ridges 4-6 mm high, copiously covered with stinging hairs, constricted between the seeds, margin winged; seeds convex lenticular, 2-3 cm across.

GENERAL DISTRIBUTION: Greater Antilles, Central America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts, Montserrat!, Guadeloupe!, Marie Galante, Dominica, Martinique!, St. Lucia, St. Vincent, the Grenadines, Grenada, Barbados.

COMMON NAMES: Z'yeux-bourrique, z'yeux à boeuf.

Mucuna urens (L.) DC., Prodr. **2**: 405. 1825.

FIGURE 192.

* Basionym: *Dolichos urens* L., Syst. Nat. ed. 10, **2**: 1162. 1759.

Type: Jamaica, Plukenet, Herb. Sloane 97, f. 86 (BM).

Syn.: *Dolichos altissimus* Jacq., Enum. Syst. Pl. 27. 1760. (Type: Jacq., Select. Stirp. Amer. Hist. t. 182 f. 85. 1763.)

High climbing woody vine, stems glabrate. Stipules scalelike, 2-3 mm long; petioles 3-4 cm long, leaflets ovate, 9-10 cm long, 5 cm wide, apex abruptly acuminate to acute, base obtuse or rounded, lateral leaflets oblique, glabrescent. Inflorescence pendulous, peduncle 50 cm or more, flowers aggregated, pedicels < 2.5 cm long, calyx cup 9 mm long, teeth 5 mm long; standard 2.5-3 cm long, wings clavate, falcate, longer than the standard, 8 mm wide, stigma capitate tufted. Fruits oblong, < 20 cm long, 6 cm wide, surface and margin with irregular reticulate high lamellae, constricted between seeds, copiously hispid with



FIGURE 192. *Mucuna urens*, x 0.4.

reddish brown stinging hairs, beak slender, seeds 3-4 cm dia., compressed, yellowish brown, almost surrounded by black hilum.

GENERAL DISTRIBUTION: Central America, Greater Antilles, Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Guadeloupe!, Marie Galante!, St. Vincent!.

COMMON NAMES: Sea bean, canicroc, z'yeux canique noir, z'yeux-bourrique.

NOTE: Seeds have been found in drift material along beaches on several other islands.

ORMOSIA Jackson

Ormosia Jackson, Trans. Linn. Soc. London **10**: 360. 1811, nom. cons.

Large trees. Stipules small, deltoid to linear, caducous; leaves alternate, imparipinnate, 3-19 foliolate. Inflorescence terminal, panicle or raceme, bracteate; flowers large, lilac or dark purple, calyx campanulate, teeth 5, deltoid, subequal, upper 2 connate; standards orbicular, glabrous, wings obliquely obovate or oblong, keel incurved, petals free; stamens free, all perfect or some without anthers, alternating in length; ovary subsessile, ovules 2-several, style filiform, stigma lateral, introrse. Legume dehiscent, compressed or turgid, 1-6-seeded; seeds ellipsoidal or globose, red or bicolored red and black.

TYPE SPECIES: *Robinia coccinea* Aublet = *Ormosia coccinea* (Aublet) Jackson, type cons.

REFERENCE: V. Rudd, Contr. U. S. Natl. Herb. **32**: 279-384. 1965.

KEY TO THE SPECIES

Leaflets 14-28 cm long x 9-20 cm wide, ca. 19 pairs of veins; valves of fruit coriaceous, minutely velutinous to sericeous, 2-4-seeded, seeds red *O. krugii*
Leaflets ca. 10 cm long, 4 cm wide, ca. 10 pairs of veins; valves of fruit ligneous, densely velutinous or tomentose, mostly single-seeded, seeds bicolored red and black
..... *O. monosperma*

Ormosia krugii Urban, Symb. Antill. **1**: 320. 1899.

Lectotype: Puerto Rico, *Sintenis 1886* (lectoholotype, us).

Tree to 25 m. Stipules not known; petioles 7-28 cm long, leaflets 5-9, elliptic to suborbicular, 14-23 cm long, 8-20 cm wide, apex obtuse or short acuminate, base rounded to subcordate, upper surface glabrous, lower surface sericeous. Inflorescence 30 cm long; calyx tube 5-7 mm long, 7 mm dia., teeth 3-6 mm long, ferruginous sericeous; standard brown to purple-black but with a white center. Legume 3-10 cm long, 2-2.7 cm wide, 1-6-seeded, submoniliform, valves coriaceous, fulvo- to ferrugino-sericeous; seeds red, 10-13 mm long, 11-13 mm broad, 9-10 mm thick.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!

COMMON NAMES: Caconnier, caconier blanc.

Ormosia monosperma (Sw.) Urban, Symb. Antill. 1: 321. 1899. FIGURE 194.

Basionym: *Sophora monosperma* Sw., Prodr. 66. 1788; Fl. Ind. Occid. 722. 1798.

Type: St. Vincent, *Anderson* (holotype, BM).

Syn.: *Ormosia dasycarpa* Jackson, Trans. Linn. Soc. London 10: 362, t. 26. 1811. (Type: St. Vincent, *Anderson* (G).)

Tree to 18 m tall. Stipules linear-deltoid, 3 mm long; petioles 2-4 cm long, leaflets 7-11, ovate to oblong, 4-15 cm long, 1.5-6 cm wide, apex acute to acuminate, acumen to 2 cm, base rounded or acute, upper surface glabrous, lower surface tomentulose along the veins. Inflorescence 20 cm long; calyx tube 4-5 mm long, 5 mm dia., teeth deltoid, 3-5 mm long; corolla dark purple but standard with white spot. Legume 2.5-6 cm long, 2.5-3.5 cm wide, 2 cm thick, 1-2-seeded, valves ligneous, densely fulvo- to ferrugino-velutinous; seeds 15-17 mm long, 15-17 mm broad and 10-11 mm thick, red and black.

GENERAL DISTRIBUTION: Lesser Antilles, Trinidad, Tobago, Venezuela.



FIGURE 193 (left). *Pachyrhizus erosus*, x 0.3. FIGURE 194 (right). *Ormosia monosperma*, x 0.3.

DISTRIBUTION IN LESSER ANTILLES: Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Snakewood, bois fougé, caconi rouge, bois oui, wawai, grain l'église, angelin, bastard nickers, jumbi beads, jumbie, pwa bwa wawi, dédéfouden.

PACHYRHIZUS Rich.

Pachyrhizus Rich. ex DC., Prodr. 2: 402. 1825, nom. cons.

Trailing or climbing herb with tuberous roots. Stipules lanceolate, not produced below point of insertion. Leaflets 3, pinnate. Inflorescence long-stalked raceme, flowers clustered at nodes. Calyx 5-lobed, upper 2 forming bifid lip; standard appendaged inside and auriculate; wings appendaged; keel incurved. Stamens 10, upper free, anthers uniform. Style pubescent, flattened, stigma borne laterally. Fruit linear-oblong, flattened, dehiscent, valves impressed between flattened seeds.

TYPE SPECIES: *Pachyrhizus angulatus* Rich. ex DC. nom. illeg. = *Pachyrhizus erosus* (L.) Urban, type cons.

A genus of 4 or 5 species native of tropical America.

Pachyrhizus erosus (L.) Urban, Symb. Antill. 4: 311. 1905.

FIGURE 193.

Basionym: *Dolichos erosus* L., Sp. Pl. 2: 726. 1753.

Type: Pluk., Almagestum 292, t. 54, f. 4.

Syn.: *Pachyrhizus angulatus* Rich. ex DC., Prodr. 2: 402. 1825.

Climber to 6 m, stems hairy. Stipules lanceolate, 5-10 mm, petioles 5-18 cm; blades rhomboidal or broadly ovate, 5-18 x 4-15 cm, base cuneate, apex angular and coarsely toothed to shallowly 5-lobed; sparsely pubescent. Inflorescence to 50 cm, flowers 1-5 at each node, calyx 7 mm, corolla 2.5 cm, blue, purple or occasionally white. Fruit 7.5-14 x 1-1.6 cm, bristly pubescent to glabrate; seeds oblong-ellipsoidal, flattened, 8 x 7 x 3 mm, brown to black.

GENERAL DISTRIBUTION: Native of tropical America but cultivated worldwide in tropics.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Dominica, Martinique, St. Lucia!.

COMMON NAMES: Pois-patate, patate-cochon, yam bean.

NOTE: Reported as cultivated but apparently established on St. Lucia. Poorly represented in herbaria.

PHASEOLUS L.

Phaseolus L., Sp. Pl. 2: 723. 1753.

Erect, prostrate or climbing herbs. Stipules persistent, striate, not prolonged beyond point of insertion; petiolate, leaflets 3. Inflorescence axillary, flowers in

clusters along the axis, racemelike, with swollen nodes; flowers small to medium-sized, yellow, white or scarlet; calyx 5-lobed, 2-lipped; standard orbicular, often reflexed, often with 2 appendages within; wings following the spiral of the keel; keel narrow, elongated and beaked forming a spiral of 1-5 turns at the apex; stamens diadelphous, anthers alternating basifixed and versatile; ovary linear, ovules 2-several, style filiform, the apical portion thickened, curved through 360 degrees. Legume linear or oblong, often curved, dehiscent; seeds oblong or reniform, hilum short and central.

TYPE SPECIES: *Phaseolus vulgaris* L.

Once considered a genus of 200 species but now being realigned with transfers of most taxa of the Antilles to *Vigna*. The following species are cultivated in the Lesser Antilles.

REFERENCE: B. Verdcourt, Kew Bull. **24**: 507-569. 1970.

KEY TO THE SPECIES

1. Fruits oblong-falcate, 3-4-seeded, flowers whitish, bracteoles rather small, shorter than calyx *P. lunatus*
(Lima bean, broad bean, Barbuda bean, jimbo bean, pwa chous)
1. Fruits narrower, not falcate, mostly 9-15-seeded.
 2. Flowers white, yellowish, pink, violet-purple, mostly few, 1.9 cm long, bracteoles conspicuous, exceeding the calyx *P. vulgaris*
(String beans, French beans, kidney beans, pwa salad, pois rouge.)
 2. Flowers bright scarlet, usually numerous, mostly 2-2.5 cm long, bracteoles shorter than or equalling the calyx *P. coccineus*
(Scarlet runner bean)

PISCIDIA L.

Piscidia L., Syst. Nat. ed. 10, **2**: 1151, 1155, 1376. 1759, nom. cons.

Syn.: *Ichthyomethia* P. Browne, Civ. Nat. Hist. Jamaica 296. 1756. Lectotype species: *Erythrina piscipula* L. = *Ichthyomethia piscipula* (L.) Hitchc. = *Piscidia piscipula* (L.) Sargent.

Trees. Stipules obliquely ovate, to reniform, caducous; leaves imparipinnate, 5-27, leaflets opposite. Inflorescence axillary, panicle or raceme; flowers pink to white; calyx campanulate, teeth short and broad, standard suborbicular, wings falcate-oblong, adherent to the keel, keel obtuse; stamens monadelphous, anthers uniform; ovary sessile, ovules many, style filiform, glabrous above, stigma minute. Legume linear, compressed, with 4 longitudinal wings, indehiscent but breaking into segments, each 1-seeded; seeds reniform to oval, laterally compressed, hilum lateral, elliptic to suborbicular.

TYPE SPECIES: *Piscidia erythrina* L. = *Piscidia piscipula* (L.) Sargent.

A genus of 10 species occurring in Florida, Central America and the West Indies.

REFERENCE: V. Rudd, Phytologia **18**: 473-499. 1969.

***Piscidia carthagenensis* Jacq., Enum. Syst. Pl. 27. 1760.**

FIGURE 196.

Type: Colombia, *Jacquin s.n.* (lectotype, BM).

Syn.: *Ichthyomethia acuminata* S. F. Blake, J. Wash. Acad. Sci. **9**: 249. 1919. (Type: Antigua, *Rose, Fitch, & Russell 3419*. (holotype, us).)

Piscidia acuminata (S. F. Blake) Johnston, Contr. Gray Herb. **70**: 71. 1924.

Ichthyomethia piscipula (L.) Hitchc. var. *acuminata* (S. F. Blake) Stehlé, Bull. Mus. Hist. Nat. (Paris) **2**, **18**: 115. 1946.

Piscidia erythrina sensu Griseb., Fl. Brit. W. Indian Is. 200. 1860, not L.

Tree to 15 m. Stipules obliquely ovate, 3-5 mm long, 3-5 mm broad; petiole 5-7 cm long; leaflets ovate or obovate to elliptic, 4-20 cm long, 2-10.4 cm broad, apex obtuse, acute or short acuminate, base rounded, glabrous above, pubescent below. Flowers pink, appearing when tree is in leafless condition, 13-18 mm long, pedicels 4 mm, calyx sericeous, stipitate, tube 4-6 mm long, lobes 1-2 mm; standard sericeous on outer side. Legume 1-8-seeded, 3-11 cm long, stipe 6-20 mm long, wings 1-2 cm wide; seeds oblong, 5-8 mm long, 3-4 mm wide, reddish brown, hilum elliptic, 2 mm long.

GENERAL DISTRIBUTION: Mexico, Central America, Puerto Rico, Venezuela.



FIGURE 195 (left). *Pueraria phaseoloides*, x 0.33. FIGURE 196 (right). *Piscidia carthagenensis*, x 0.33.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts, Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Les Saintes!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados.

COMMON NAME: Dogwood.

PTEROCARPUS Jacq.

Pterocarpus Jacq., Select. Stirp. Amer. Hist. 283, 1763, nom. cons.

Tree. Stipules large and foliaceous; leaves alternate, imparipinnate, leaflets alternate to subopposite. Inflorescence axillary or terminal, raceme or panicle; flowers large, showy, white or yellow; calyx campanulate, 5-toothed, the 2 upper teeth connate; standard orbicular or broadly ovate, wings oblong, falcate, keel similar to wings; stamens monadelphous or diadelphous, anthers uniform; ovary sessile or stipitate, ovules 2-6, style slender, incurved, glabrous, stigma small, terminal. Legume orbicular to ovate, compressed, indehiscent, margin winged or acute; seeds 1 or 2, reniform.

TYPE SPECIES: *Pterocarpus officinalis* Jacq., type cons.

A genus of 20 species, most numerous in Africa.

NOTE: *Pterocarpus rohrii* Vahl, reported by Grisebach from St. Vincent on the basis of a Guilding collection, was introduced from the Guianas by Alexander Anderson and once cultivated in the botanic garden.

Pterocarpus officinalis Jacq., Select. Stirp. Amer. Hist. 283, *t.* 183, *f.* 92.
1763. FIGURE 197.

Lectotype: *ibid.* *t.* 183, *f.* 92.

Syn.: *Pterocarpus draco* L., Sp. Pl. ed. 2, 2: 1662. 1763 in part.

Tree to 30 m, usually of lagoons and wet areas, bark slash shows red latex; buttress roots conspicuous. Stipules linear 8-9 mm long, 1.5 mm wide, caducous; petioles 2-3 cm long; leaflets 5-9, ovate to ovate-oblong or ovate-lanceolate, apex acute to abruptly acuminate, base rounded, glabrous, shining, drying black, 5-17 cm long, 5-6 cm wide. Axillary panicles to 10 cm long, terminal panicles 15-20 cm, pedicels 2 mm long, calyx 5 mm long, oblique, teeth deltoid to ovate; corolla 10-15 mm long, standard 8 mm long, yellow with crimson or brown stripes. Legume short stipitate, obliquely suborbicular, 3-5 cm broad, broadly winged on one side, reticulate-veined; seeds usually 1.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.



FIGURE 197 (left). *Pterocarpus officinalis*, x 0.33. FIGURE 198 (right). *Rhynchosia reticulata*, x 0.33.

PUERARIA DC.

Pueraria DC., Ann. Sci. Nat. (Paris) **4**: 97. 1824.

Stout vines scrambling or forming tangles, stems with long spreading hairs. Stipules ovate to linear, extended below point of attachment; leaves alternate, pinnately trifoliate, leaflets large, lobed or undulate-margined. Inflorescence axillary or clustered near apex of stem, racemes, flowers clustered; calyx campanulate, 5-toothed, the upper two joined; corolla blue to purple, standard broad, entire or emarginate, with auricles, wings spurred, keel abruptly curved; stamens monadelphous or diadelphous, anthers uniform; ovary linear, usually pubescent, ovules many, style slender, curved or abruptly bent, glabrous, stigma capitate. Legume oblong, compressed; seeds numerous.

LECTOTYPE SPECIES: *Pueraria tuberosa* (Roxb. ex Willd.) DC.

A genus of 20 species of southern Asia introduced to the New World as a forage plant.

Pueraria phaseoloides (Roxb.) Benth, J. Linn. Soc., Bot. **9**: 125. 1865. FIGURE 195.

Basionym: *Dolichos phaseoloides* Roxb., Fl. Ind. ed. 1832, **3**: 316. 1832.

Type: "Roxburgh's drawing 1890" ex Verdcourt.

Vigorous perennial forming dense tangled masses. Stipules setaceous, 3-4 mm; petioles 2-13 cm long; leaflets ovate or rhomboid, 2-12 cm long, 1.5-11 cm wide, entire or 3-lobed, apex acute to acuminate, base rounded to cuneate, usually velvety pubescent below. Inflorescence to 30 cm long, corolla blue or violet, 1-2 cm long. Legume linear, 4-11 cm long, 3-4.5 mm wide, compressed, densely pubescent; seeds oblong, 3-3.5 mm long, 2.3 mm wide, plump, black or brown or mottled.

GENERAL DISTRIBUTION: Southeast Asia but introduced elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique, St. Lucia!, St. Vincent!.

COMMON NAME: Kudzu.

RHYNCHOSIA Lour.

Rhynchosia Lour., Fl. Cochinch. 425, 460. 1790, nom. cons.

Trailing or climbing woody herbs. Stipules truncate at the base, caducous. Leaves alternate, pinnately 3-foliolate, lower leaf surface with resinous glands. Inflorescences axillary, single or paired racemes; flowers small, yellow; calyx 4-5-lobed, the upper 2 united; standard ovate to orbicular, clawed, auriculate, wings narrow, keel incurved; stamens diadelphous, anthers uniform; ovary sessile, ovules 2, style filiform, glabrous, usually stiffened above, stigma terminal, small. Legume oblong, compressed, 2-valved, short-beaked; seeds compressed globose or subreniform, red, hilum lateral, round to elongate.

TYPE SPECIES: *Rhynchosia volubilis* Lour.

A genus of 200 species throughout the tropics and subtropics.

NOTE: *Rhynchosia caribaea* (Jacq.) DC. is an African species not known from modern collections in the West Indies.

REFERENCE: J. W. Grear, Mem. New York Bot. Gard. **31**(1): 1-168. 1978.

KEY TO THE SPECIES

1. Pod constricted between the seeds, seeds red and black *R. phaseoloides*
1. Pod not constricted between the seeds, seeds grey, black, brown or marbled, not red and black.
 2. Leaves prominently reticulate-veined below; calyx 7-12 mm long, nearly as long as the corolla *R. reticulata*
 2. Leaves not prominently reticulate, veined below, calyx 2-3 mm long, half as long as corolla *R. minima*

Rhynchosia minima (L.) DC., Prodr. 2: 385. 1825.

Basionym: *Dolichos minimus* L., Sp. Pl. 2: 726. 1753.

Lectotype: Jamaica, *Sloane s.n.* (BM).

Perennial climbing herb, stems to several meters in length, glabrous or velvety. Stipules linear-lanceolate 3.5 mm long. Petioles 1-4 cm long; leaflets rhomboid, ovate to suborbicular, 1-6 cm long, 0.8-5 cm wide, apex rounded to acuminate, base cuneate to truncate, glabrous to velvety below, densely gland-dotted. Inflorescence 2-15 cm long on peduncles 1-7 cm, flowers lax, standard yellow streaked with red. Legume oblong falcate, 0.6-2.5 cm long, 3-5 mm wide, glabrous to densely pubescent; seeds oblong reniform, 2.5-3.2 mm long, 2-2.5 mm wide, grey-brown or black.

GENERAL DISTRIBUTION: Worldwide in the tropics showing a great deal of variation.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Jumby bean, horse rub-down.

Rhynchosia phaseoloides (Sw.) DC., Prodr. 2: 385. 1825.

Basionym: *Glycine phaseoloides* Sw., Prodr. 105. 1788, emend. Grear.

Lectotype: Jamaica, *Swartz* (s).

Woody vine, stems to 9 m long. Stipules ovate to lanceolate, 4-8 mm long, 1-3 mm wide, acuminate, caducous; petioles 4-7 cm long; leaflets ovate, lanceolate, rhomboid or deltoid, 2-14 cm long, 1.5-11 cm wide, apex acute to acuminate, base obtuse, puberulous above, villose below. Inflorescences 9-30 cm long, peduncle 5-40 mm long, calyx 4-6 mm long, lobes 1-4 mm long; standard obovate 7-8 mm long, 6-7 mm wide, auricles 1.5-2 mm long; wings oblong, 7 mm long, keel falcate, 7-8 mm long. Legume oblong-ovate, 12-24 mm long, 8-12 mm wide,

turgid, constricted, pubescent; seeds subglobose, 6-7 mm long, 4-5 mm wide, red and black; hilum ovate, 2-3 mm long.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

Rhynchosia reticulata (Sw.) DC., Prodr. 2: 385. 1825.

FIGURE 198.

Basionym: *Glycine reticulata* Sw., Prodr. 105. 1788.

Lectotype: Jamaica, Swartz (s).

Syn.: *Rhynchosia aequinoctalis* Duchass. & Walp., Linnaea 23: 743. 1850. (Lectotype: Guadeloupe, Duchassaing s.n. (P).)

Dolicholus reticulatus (Sw.) Millsp., Publ. Field Colombian Mus., Bot. Ser. 2: 53. 1900.

Herbaceous to woody vine, stems to 6 m long. Stipules lanceolate to deltoid 2-12 mm long, 2-8 mm wide; petioles 1-6 cm long; leaflets lanceolate, oblong, ovate, to obovate, 2-12 cm long, 1-7 cm wide, apex acute to acuminate, base obtuse to subcordate, strigose above, prominently reticulate-veined below, tomentose. Inflorescence 2-25 cm long, densely to loosely flowered; calyx 8-12 mm long, usually exceeding the corolla lobes 5-11 mm long; corolla yellow or with brownish streaks, standard obovate to orbicular, 6-10 mm long, wings 5.5-9 mm long, keel flaccid, 6-10 mm long. Legume oblong-ovate 1.5-3 cm long, 5-10 mm wide, compressed, seeds suborbicular 4-5 mm long, 3-5 mm wide, brown, black or mottled, hilum oblong 1-1.5 mm long.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie-Galante!, St. Vincent!, the Grenadines!, Grenada!.

SABINEA DC.

Sabinea DC., Ann. Sci. Nat. (Paris) 4: 92. 1825.

Shrubs. Stipules lanceolate; leaves alternate, pinnate. Inflorescence axillary, small, fascicles or racemes, flowering in leafless condition; flowers purplish, calyx campanulate or turbinate, truncate, with 5 minute lobes; standard suborbicular, clawed, auricled, reflexed; keel obliquely oblanceolate or obovate, clawed, equal to wings; stamens diadelphous, anthers uniform; ovary stipitate, ovules many, style glabrous, incurved, stigma minute, terminal. Legume flat, 2-valved; seeds compressed, ovate.

TYPE SPECIES: *Robinia florida* Vahl = *Sabinea florida* (Vahl) DC.

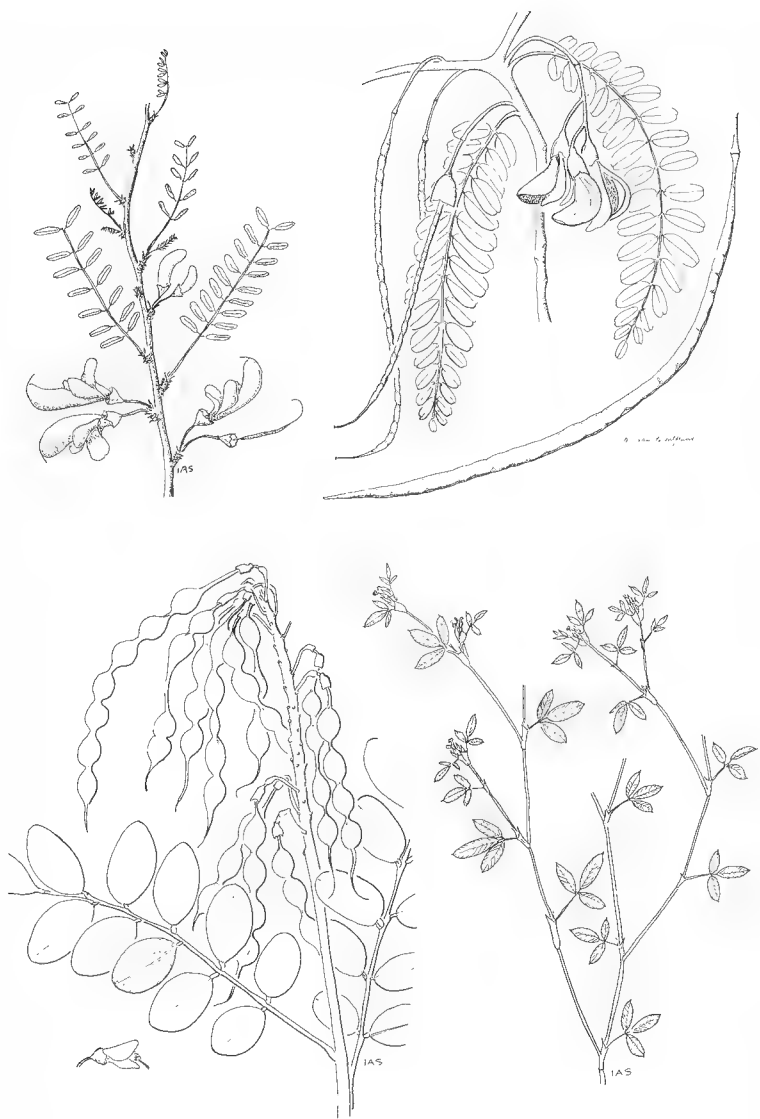


FIGURE 199 (upper left). *Sabinea carinalis*, x 0.4. FIGURE 200 (upper right). *Sesbania grandiflora*, x 0.2. FIGURE 201 (lower left). *Sophora tomentosa*, x 0.4. FIGURE 202 (lower right). *Stylosanthes hamata*, x 0.4.

Type: Dominica, *Imray 102* (K).

Shrub. Stipules lanceolate; leaflets 12-16, oblong, 10-16 mm long, 3-6 mm wide, apex rounded and minutely mucronulate; base rounded, glabrous. Flowers 3-5 in axillary clusters; calyx 6 mm long; corolla bright scarlet, standard suborbicular, to 2.5 cm long, reflexed; wings spatulate-oblong, 2.5 cm long, keel 2.7-3 cm long, rounded. Fruit unknown.

GENERAL DISTRIBUTION: Endemic to Dominica.

NOTE: Grisebach cited *Sabinea florida* (Vahl) DC. from Dominica apparently based on *Imray 33* (K) which is *S. carinalis*. *Sabinea florida* is now regarded as a species endemic to Puerto Rico and the Virgin Islands. It is represented from St. Vincent by *Anderson s.n.* (BM), apparently an introduction of Anderson to the St. Vincent botanic garden.

SESBANIA Scop.

Sesbania Scop., Intr. Hist. Nat. 308. 1777.

Syn.: *Agati* Adans., Fam. Pl. 2: 326, 513. 1763.

Herbs, shrubs or small trees. Stipules caducous. Leaves alternate, evenly pinnate, rachis ending in a setaceous point, leaflets numerous. Inflorescence axillary, racemose, usually few-flowered, flowers yellow, purplish, variegated, and of medium size or large white or red; calyx broadly campanulate, 5-lobed; standard orbicular to ovate, spreading or reflexed, wings oblong, clawed, with a basal auricle, keel sharply incurved, clawed; stamens diadelphous, geniculate near the base; ovary short stipitate, ovules many, style glabrous incurved, stigma small, capitate. Legume linear to subterete, beaked, dehiscent by 2 valves, transversely septate; seeds cylindrical-oblong, brown, smooth.

TYPE SPECIES: *Aeschynomene sesban* L. = *Sesbania sesban* (L.) Merrill.

A genus of 50 species of the tropics and subtropics.

KEY TO THE SPECIES

1. Flowers large, 6-9 cm long, white to red; calyx lobes broad and short, standard narrow; fruit to 50 cm long; small tree *S. grandiflora*
1. Flowers small, yellow or mottled, calyx lobes acute or acuminate, standard broad; herbs or shrubs.
 2. Leaves silky pubescent below *S. sericea*
 2. Leaves glabrous.
 3. Inflorescences about equaling the leaves; calyx lobes triangular, less than 1 mm long; standard less than 1.5 cm long; pod torulose *S. sesban*
 3. Inflorescences shorter than the leaves; calyx lobes acute to acuminate, more than 1 mm long; standard 1.8-2.5 cm long; pod terete or flattened but not torulose.

4. Pod terete, 2-3 mm dia.
5. Stems with scattered small prickles *S. bispinosa*
5. Stems unarmed *S. emerus*
4. Pod flattened, 4-6 mm wide *S. exasperata*

Sesbania bispinosa (Jacq.) Wight, U.S.D.A. Bur. Pl. Industr. Bull. **137**: 15. 1909.

Basionym: *Aeschynomene bispinosa* Jacq., Icon. Pl. Rar. **3**: 13. 1792.

Type: *ibid.* t. 564.

Herb or shrub to 3 m tall, stems glabrous, usually armed with short prickles. Stipules linear-subulate; leaves 10-30 cm long, leaflets oblong, rounded both ends, mucronate at apex. Racemes lax, to 15 cm long, 3-10-flowered, calyx 5 mm high, lobes deltoid, acute; corolla 10-12 mm long, standard pale yellow, streaked or dotted with red-brown; blades of wings oblanceolate, keel petals with sharp basal auricle. Legume 15-20 cm long, 3 mm wide, seeds 15-45, each 3 mm long, 1.5 mm high, brown.

GENERAL DISTRIBUTION: Native of tropical Africa and Asia, introduced in the New World.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Barbados!.

Sesbania emerus (Aublet) Urban, Repert. Spec. Nov. Regni Veg. **16**: 149. 1919.

Basionym: *Aeschynomene emerus* Aublet, Hist. Pl. Guiane. **2**: 775. 1775.

Type: Plum., Pl. Amer. t. 125, f. 1. 1756.

Stem woody at base, to 5 m tall. Stipules linear-subulate, caducous; leaves 7-18 cm long, leaflets 24-50, linear-oblong, 1.5-3 cm long, 3-7 mm wide, rounded at each end. Racemes 5-10 cm long, shorter than leaves, 3-6-flowered, calyx 8 mm long, lobes acuminate, 2-2.5 mm long; corolla yellow, 15-20 mm long, standard dotted with purple; wings oblong-ob lanceolate. Legume straight, 20 cm long, 3.5-4 mm wide, seeds 30-40, seeds oblong, 3 mm long, 2 mm wide.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Martinique!.

Sesbania exasperata Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. **6**: 534. 1824.

Type: Venezuela. Collector or number not stated.

Shrub to 3 m, glabrous. Stipules lanceolate, to 8 mm; leaves 15-20 cm long, leaflets 50-60, linear-oblong, 11-25 mm long x 3-5 mm wide, glabrous above, glaucescent below, rounded at base, rounded and slightly short mucronate at apex. Racemes shorter than the leaves, 3-6-flowered; pedicels 6-10 mm; calyx 7-8 mm, lobes deltoid, to 3 mm, glabrous; standard 18-25 mm long, yellow. Pod 15-25 cm long, 4-6 mm broad, flattened; seeds 20-40, each 4-5 x 2-2.5 mm, brown, shining.

GENERAL DISTRIBUTION: Central America, Colombia to Venezuela, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!.

NOTE: Presumably once under cultivation but never recollected.

Sesbania grandiflora (L.) Poiret in Lam., Encycl. 7: 127. 1806. FIGURE 200.

Basionym: *Robinia grandiflora* L., Sp. Pl. 2: 722. 1753.

Type: Not determined.

Syn.: *Agati grandiflora* (L.) Desv., J. Bot. Agric. 1: 120. 1813.

Small tree to 10 m with fragile wood and branches. Stipules spinescent, lanceolate, 6-12 mm long; petioles 2-4 cm; leaflets 9-25, orbicular-ovate, 1-2 cm long, 1-1.4 cm wide, apex subtruncate, mucronulate, base obtuse to cordate. Racemes equaling the leaves, pedicels filiform 1-2.5 cm long; calyx 5-6 mm long, standard 2 cm long, red, pink or white. Legume 20-40 cm long, 8 mm wide, stipitate at the base; seed oblong, 6 x 4 mm, brown.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, but introduced and cultivated elsewhere in the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!, Guadeloupe!, St. Lucia!.

Sesbania sericea (Willd.) Link, Enum. Hort. Berl. Alt. 2: 244. 1822.

Basionym: *Coronilla sericea* Willd., Enum. Pl. Hort. Berol. 773. 1809.

Neotype: Ferguson in Thwaites C. P. 3850 (K).

Stems woody, sometimes slightly spiny. Stipules subulate, 5 mm long; leaves 5-15 cm long, leaflets 20-40, oblong, rounded at both ends but mucronate at apex, silky villous beneath. Racemes 2-6 cm long, 1-6-flowered, calyx 5 mm long, lobes deltoid, short-acuminate, corolla dull yellow, 9-12 mm long, legume 10-16 cm long, 3 mm wide, seeds 20-30, 3 mm long, 2 mm high.

GENERAL DISTRIBUTION: Native of Ceylon, introduced elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Marie Galante, Martinique!, St. Lucia!.

Sesbania sesban (L.) Merr., Philipp. J. Sci. 7: 235. 1912.

Basionym: *Aeschynomene sesban* L., Sp. Pl. 2: 714. 1753.

Type: Linn 922.12.

Syn.: *Sesbania aegyptiaca* Pers., Syn. Pl. 2: 326. 1807. (Type: Egypt, not specified.)

Herb or soft-wooded shrub to 3 m. Stipules linear-lanceolate, caducous; leaves 8-15 cm long, leaflets 20-30, linear-oblong 2-3 cm long, 4-6 mm wide, rounded at both ends, mucronate. Racemes equaling or exceeding the leaves, 5-12-flowered, calyx 4-5 mm high, 6 mm broad, lobes triangular, acute, less than 1 mm; corolla yellow, standard streaked with dark purple, to 15 mm long. Legume linear, 12-20 cm long, 3 mm wide, somewhat twisted, slightly torulose, seeds 15-30, oblong 3.5-4 mm long, 2 mm wide.

GENERAL DISTRIBUTION: Native of tropical Africa and Asia introduced into the New World.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Guadeloupe.

SOPHORA L.

Sophora L., Sp. Pl. 1: 373. 1753.

Trees or shrubs. Stipules minute, caducous; leaves alternate, imparipinnate, leaflets numerous. Inflorescence terminal raceme or panicle; flowers white or yellow, medium size; calyx campanulate, teeth short; standard obovate or suborbicular, usually shorter than keel, reflexed; wings obliquely oblong, keel oblong, straight; stamens free, anthers uniform; ovary short stipitate, ovules numerous, style incurved, stigma minute, terminal. Legume stalked, terete to moniliform, indehiscent or tardily so; seeds ovoid to globose.

LECTOTYPE SPECIES: *Sophora alopecuroides* L.

A genus of 50 species in the tropics and temperate areas of the Old and New World.

Sophora tomentosa L., Sp. Pl. 1: 373. 1753.

FIGURE 201.

Lectotype: Ceylon, Herb. Hermann 3: 13.

Shrub or small tree to 5 m tall, the whole plant white or gray tomentose. Stipules linear-deltoid, 3 mm long; leaflets 9-19, broadly elliptic to orbicular, 1.5-4 cm long, 1.2-3 cm wide, apex rounded, base unequal, one side rounded, the other cuneate. Inflorescence to 25 cm long, flowers to 2 cm long, pedicels 5-10 mm long, corolla pale yellow. Legume to 8-10 cm long, 4-8-seeded, tipped with persistent style or undeveloped area often to 4 cm long; seeds subglobose, 6-9 mm long, 5-7 mm wide, pale brown, hilum orbicular, eccentric, 1 mm long.

GENERAL DISTRIBUTION: Widespread in the tropics of Asia, Africa and the New World.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Barbuda!, Antigua!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica!, Martinique!, St. Vincent!, the Grenadines!.

COMMON NAMES: Haricot bâtard, bead tree.

STYLOSANTHES Sw.

Stylosanthes Sw., Prodr. 7, 108. 1788.

Perennial herbs. Stipules adnate to the petiole; leaves alternate, pinnately trifoliate. Inflorescence a dense short spike; flowers small, yellow; calyx tube elongate, upper 4 lobes connate, lower free; standard orbicular, wings oblong, keel incurved; stamens monadelphous, anthers alternately long and short; ovary subsessile, ovules 2-3, style elongated, lower part persistent and hooked in fruit,

stigma minute, terminal. Legume a loment, sessile, compressed, articles 1 or 2, hooked, reticulate; seeds ovate to lenticular, compressed.

TYPE SPECIES: *Stylosanthes procumbens* Sw. (nom. illeg.) = *Hedysarum hamatum* L. = *Stylosanthes hamata* (L.) Taubert.

REFERENCE: R. H. Mohlenbrock, Ann. Missouri Bot. Gard. **44**: 299-355. 1958.

Stylosanthes hamata (L.) Taubert, Verh. Bot. Vereins Prov. Brandenburg **32**: 22. 1889. FIGURE 202.

Basionym: *Hedysarum hamatum* L., Syst. Nat. ed. 10, **2**: 1170. 1759.

Lectotype: Sloane, Voy. Jamaica t. 119, f. 2, although Fawcett & Rendle state "type in Herb. Brit. Mus."

Syn.: *Stylosanthes procumbens* Sw., Prodr. 7, 108. 1788, nom. illeg.

Herbs with ascending or prostrate stems to 1 m long. Stipules 3-11-nerved, sheath equalling or surpassing the teeth; petioles 2-6 mm long; leaflets lanceolate to elliptic, < 20 mm long, 6 mm broad, apex obtuse to subacute, base narrowed or rounded. Spikes small, few- to 15-flowered, subtending floral bracts trifoliate; flowers yellow, standard suborbicular, 4-5 mm long, wings 3.5-4.5 mm long, clawed, keel as long, falcate. Loment of 2 articles, these 2-2.4 mm long, beak slightly exceeding upper article, glabrous, uncinat.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, St. Kitts!, Guadeloupe!, La Désirade!, Marie Galante!, Martinique!, St. Lucia!, the Grenadines!, Barbados!.

COMMON NAMES: Sweet weed, petit trèfle, trèfle jaune.

NOTE: Fournet (p. 771) reported *Stylosanthes guianensis* cultivated as a forage plant in Guadeloupe. This hirsute plant with leaflets 1-1.5 cm long is not represented by specimens.

TEPHROSIA Pers.

Tephrosia Pers., Syn. Pl. **2**: 328. 1807, nom. cons.

Syn.: *Cracca* L., Sp. Pl. **2**: 752. 1753.

Herbs or shrubs. Stipules setaceous from a broad base, persistent; leaves alternate, imparipinnate; leaflets several, to 18 pairs, usually opposite, usually with close parallel nerves. Inflorescence terminal or opposite the leaves, racemes, flowers to 2.5 cm long, red, purple or yellow; calyx campanulate teeth subequal, the upper 2 connate; standard suborbicular, hairy outside; wings obliquely obovate, slightly adherent to the keel; keel incurved; stamens diadelphous, alternately long and short, anthers uniform; ovary sessile, ovules 4-20, style incurved, glabrous or bearded, stigma terminal, penicillate. Legume linear,

sometimes falcate, compressed, 2-valved, these twisting; seeds 1-20, orbicular, light brown to black, hilum centric, sometimes with rim-aril.

TYPE SPECIES: *Cracca villosa* L. = *Tephrosia villosa* (L.) Pers., type cons.

REFERENCE: C. E. Wood, *Rhodora* **51**: 193-231, 233-302, 305-364, 369-384. 1949.

NOTE: *Tephrosia sinapou* (Buc'hoz) A. Chev. as *Galega toxicaria* was introduced to the St. Vincent Botanic Garden by Alexander Anderson and was once cultivated as well on Martinique.

KEY TO THE SPECIES

1. Flowers 2 cm long or more, corolla yellow or white; leaflets 20-25, apex acute, mucronate; fruit 9-12 cm long, 0.7-1.3 cm wide *T. candida*
1. Flowers and pods smaller.
 2. Legume densely hairy with fulvous hairs, leaflets 15-25, apex obtuse and mucronulate; pods 4-5 cm long, 5.5 mm wide, corolla yellow outside, inside white marked with bluish purple *T. noctiflora*
 2. Legume puberulous to silky, not fulvous; corolla tinged pink, purple, red.
 3. Pod falcate, 3-4 cm long, bulged at the seeds, leaflets 9-15, oblanceolate and emarginate, all similar in size and shape *T. purpurea*
 3. Pod straight or nearly so, 4-6 cm long, not conspicuously bulged at the seeds.
 4. Leaflets 5-9, obovate to oblanceolate, 7-17 mm wide, apex obtuse or deeply emarginate, terminal leaflet or top few much larger than the lower ones; seeds 5-7 *T. senna*
 4. Leaflets 11-15, linear or oblong-lanceolate, 3-4 mm wide, apex acute, all similar; seeds 10-13 *T. cinerea*

***Tephrosia candida* (Roxb.) DC., Prodr. **2**: 249. 1825.**

Basionym: *Robinia candida* Roxb., Fl. Ind. ed. 1832, **3**: 327. 1832.

Type: East India, *Roxburgh s.n.* (K).

Syn.: *Xiphocarpus martinicensis* Presl, Symb. Bot. **1**: 14, pl. 7. 1830. (Type: Martinique, Presl s.n. (ex Bosman & de Haas, Blumea **28**: 445. 1983).)

Shrub to 3 m tall, branches densely silky strigose with brown or gray hairs. Stipules setaceous, 1 cm long; leaflets 20-25 narrowly ovate lance-oblong, 4-5 cm long, 7-10 mm wide, apex acute, long mucronate, base acute, glabrous above, silky strigose below. Racemes terminal and in upper axils, 5-25 cm long, flowers 25-30 mm long, 3-6 at each node; pedicels 9-16 mm long; calyx tube 4 mm long, lobes rounded-ovate 2-3 mm long; standard broadly ovate to obovate, 13-25 mm long, white; style bearded. Legume 6-10 cm long, 5-8 mm wide, sparingly strigose, seeds 9-14, broadly ovate, brown or grayish brown and mottled, 4-5.5 mm long, 3-3.8 mm wide.

GENERAL DISTRIBUTION: Native of Asia, introduced in the New World.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Dominica!, Martinique, St. Lucia!.

Tephrosia cinerea (L.) Pers., Syn. Pl. 2: 328. 1807.

Basionym: *Galega cinerea* L., Syst. Nat. ed. 10, 2: 1172. 1759.

Type: Jamaica. Syntypes.

Syn.: *Tephrosia cinerea* (L.) Pers. var. *littoralis* (Jacq.) Benth. in C. Martius, Fl. Bras. 15(1): 49. 1859.

Tephrosia littoralis (Jacq.) Pers., Syn. Pl. 2: 329. 1807.

Vicia littoralis Jacq., Enum. Syst. Pl. 27. 1760. (Type: Jacq., Select. Stirp. Amer. Hist. t. 124. 1763.)

Prostrate herb to erect plant of 1 m or more, most parts silvery pubescent. Stipules 4 mm long; leaflets 11-15, oblong-elliptical 15-25 mm long, 3-8 mm wide, apex acute, apiculate, base rounded, appressed pubescent below. Flowers to 14 mm long, usually deep pink; standard 10-12 mm long; legume 8-10-seeded, seeds oblong, 3.5 mm long, 2 mm wide, dull yellow-brown.

GENERAL DISTRIBUTION: Throughout the American tropics.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Antigua, St. Kitts!, Redonda!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante, Barbados.

Tephrosia noctiflora Bojer ex Baker, Fl. Trop. Afr. 2: 112. 1871.

Type: Zanzibar, Bojer s.n.

Herb or subshrub to 1.5 m tall, densely covered with pale ferrugineous appressed pubescence; stipules 7-9 mm; leaflets 15-25, narrowly oblong-wedge-shaped, to 4 cm long, 1 cm wide, apex rounded, slightly emarginate and mucronate; base cuneate. Inflorescence terminal or axillary, to 30 cm long; flowers 1-1.2 cm long, calyx densely brown hairy, standard pale yellow outside with dense brown hairs, white and mauve inside. Legume linear, slightly curved, 4.5-5 cm long, 5.5 mm wide, densely brown hairy, seeds oblong, 3.5 mm long, 2 mm wide, rusty brown.

GENERAL DISTRIBUTION: Widespread in Africa, introduced elsewhere.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Montserrat!, Dominica!, Martinique!, St. Vincent.

Tephrosia purpurea (L.) Pers., Syn. Pl. 2: 329. 1807.

Basionym: *Cracca purpurea* L., Sp. Pl. 2: 752. 1753.

Lectotype: LINN 924.7 ex Forbes in Bothalia 4: 974. 1948.

Syn.: *Tephrosia wallichii* Graham ex Fawcett & Rendle., J. Bot. 55: 35. 1917. (Lectotype: Wallich 5640 (K).)

Herb. Stipules 1.5-9 mm long; leaf to 14.5 cm long, leaflets 9-15, obovate, elliptic to linear-elliptic, 7-28 mm long, 2-11 mm wide, apex rounded to emarginate, base acute to obtuse. Racemes terminal or leaf-opposed, 5-15 cm long, flowers in fascicles of 4-6, pedicels 2-6 mm long, flower 4-8.5 mm long, calyx tube to 2.3 mm, teeth triangular to deltoid to 3 mm long; standard broadly ovate;

style glabrous above. Legume linear, 20-45 mm long, 3-5 mm wide, flat, seeds 2-8 rectangular to elliptic, 2.5-5 x 1.8-3 mm, light brown to black.

GENERAL DISTRIBUTION: Widespread in all tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, Barbados!.

Tephrosia senna Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. 6: 458. 1824. FIGURE 203.

Type: Colombia, *Humboldt s.n.*

Syn.: *Tephrosia cathartica* (Sessé & Mociño) Urban, Symb. Antill. 4: 283. 1905.

Galega cathartica Sessé & Mociño, Fl. Mex. ed. 2, 175. 1894. (Type: Puerto Rico, Sessé & Mociño.)

Plants erect, much branched, with stems to 2 m long. Stipules linear-subulate, 4-7 mm long; petioles 2 cm long, leaflets 5-9, oblong-obovate, 1.5-4 cm long, 7-17 mm wide, appressed pubescent both sides or glabrate, apex retuse, base narrowed, terminal and upper leaflets larger than the basal. Inflorescence axillary or opposite the leaves, few-flowered, 3-15 cm long; pedicels 2 mm long; calyx 4 mm long, teeth acuminate; flower purple or red-purple. Legume 3-4 cm long, 4-5 mm wide; seeds 5-7, oblong to suborbicular, 3 mm long, 2 mm wide, yellow-brown.

GENERAL DISTRIBUTION: Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Nevis!, Martinique, St. Lucia!, St. Vincent!.

TERAMNUS P. Browne

Teramnus P. Browne, Civ. Nat. Hist. Jamaica 290. 1756.

Perennial trailing or climbing herbs. Stipules narrow, striate; leaves alternate, pinnately 3-foliolate. Inflorescence axillary racemes; calyx campanulate, 4-5-lobed; corolla small, standard obovate, unappendaged, wings narrow, longer than blunt keel; stamens monadelphous, anthers alternately small and sterile or larger and fertile; ovary linear, sessile, ovules many, style short, thick, often pubescent, stigma capitate. Legume narrowly linear, straight, septate between the 8 seeds; style lengthening and bent to an angled hook, explosively dehiscent, 2-valved, these twisted, seeds flattened.

TYPE SPECIES: *Teramnus volubilis* Sw.

A genus of 8 species of the Old World and New World tropics.

NOTE: Vélez's report of *T. uncinatus* from the Lesser Antilles based on his own collections is probably a misidentification of *T. labialis* but cannot be verified.



FIGURE 203 (upper left). *Tephrosia senna*, x 0.35. FIGURE 204 (upper right). *Teramnus labialis*, x 0.35. FIGURE 205 (lower left). *Vigna vexillata*, x 0.35. FIGURE 206 (lower right). *Zornia microphylla*, x 0.35.

Teramnus labialis (L. f.) Sprengel, Syst. Veg. ed. 16. 3: 235. 1826. FIGURE 204.

Basionym: *Glycine labialis* L. f., Suppl. Pl. 325. 1782.

Type: India, Orient. Cult. (UPS).

Climbing to prostrate herb, stems to 3 m long, mostly hairy. Stipules lanceolate to ovate-lanceolate, 3 mm long; petioles 2-4 cm, leaflets ovate to elliptic, 2-5.5 cm long, 1-3 cm wide, apex obtuse, base rounded, appressed pubescent both surfaces but more densely below. Inflorescence slender, 3-8 cm long; flowers small, 7 mm long, calyx 4 mm long, hirsute, lobes linear, standard white, 5 mm long. Legume 3-5 cm long, 3 mm wide, sparsely pubescent, beak 2 mm long, stout; seeds oblong quadrangular, 1.5-2.5 mm long, with dark brown covering, tan and smooth below this.

GENERAL DISTRIBUTION: Greater Antilles and occasionally in Central America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Winah, ti pois-pois.

VIGNA Savi

Vigna Savi, Nuov. Giorg. Lett. 8: 113. 1824.

Prostrate, erect or climbing herbs, from woody or tuberous rootstocks. Stipules truncate, bilobed or spurred at the base or sometimes peltate; leaflets 3, pinnate, digitate or only 1. Inflorescences axillary or terminal, racemelike or flowers in dense clusters; calyx 5-lobed, 2-lipped, the upper 2 lobes mostly completely joined; corolla small to medium, yellow or blue, standard mostly with 1-4 appendages of various sorts; keel truncate, obtuse or beaked, sometimes incurved or twisted; stamens diadelphous, anthers uniform; style in thin lower part ribbonlike with a hardened or thickened upper part mostly densely hairy on inner face, stigma lateral. Legume linear or linear-oblong, cylindrical or flattened, dehiscent, straight or curved; seeds reniform or square, aril obsolete to well-developed.

TYPE SPECIES: *Dolichos luteolus* Jacq. = *Vigna villosa* Savi = *Vigna luteola* (Jacq.) Benth.

A genus of 100 species especially of tropical Africa and Asia.

NOTE: *Vigna strophiolata* Piper (Contr. U. S. Natl. Herb. 22: 666. 1926) is based on *Bovell 443* (holotype, NY) from Barbados. The holotype was examined by Dr. B. Verdcourt, who suggested (litt.) that it is *Vigna racemosa* (G. Don) Hutch. & Dalziel, an African species. The original description mentioned "flower yellow" although the species normally has blue or purplish flowers.

KEY TO THE SPECIES

1. Stipules produced below the point of insertion or very distinctly peltate.
 2. Plant glabrous; style produced beyond the stigma as a short peak; stipules with a very distinct appendage below the point of attachment; keel not twisted laterally *V. unguiculata*
 2. Plant pubescent.
 3. Flowers blue, pink or white; styles with a short lobelike appendage beyond the subterminal stigma; keel twisted laterally; stipules prolonged and subcordate at the base, standard 2-3.5 cm long, 2-4 cm wide; stems covered with rusty, bristly hairs, seeds 10-18, red-brown *V. vexillata*
 3. Flowers yellow; styles produced beyond the stigma as a distinct sharp beak; stipules often distinctly peltate; standard smaller, seeds 6-8, green or black with a distinctly raised rim-aril around the hilum. (Cultivated occasionally, the Mung bean) *V. mungo*
1. Stipules truncate at the base or bilobed or shortly appendaged.
 4. Corolla yellow.
 5. Corolla 0.5-1 cm long, peduncles filiform, flowers 1-3, fruit short, only with 1-2 seeds; all parts pubescent with spreading hairs, leaflets mostly rounded and obtuse but sometimes acute *V. hosei*
 5. Corolla over 1 cm long, peduncles stout, plant glabrous, fruits with 6-9 seeds, leaflets ovate to linear-lanceolate, acute to acuminate at apex *V. luteola*
 4. Corolla blue or pink.
 6. Leaflets acute, conspicuously reticulate-veined; fruit 1 cm wide; keel twisted *V. adenantha*
 6. Leaves acuminate, not conspicuously reticulate-veined; fruit 4-5 mm wide; keel not twisted *V. antillana*

Vigna adenantha (G. Meyer) Marechal, Mascherpe & Stanier, Taxon **27**: 202. 1978.

Basionym: *Phaseolus adenanthus* G. Meyer, Prim. Fl. Esseq. 239. 1818.

Type: Guiana, not further specified.

Syn.: *Phaseolus truxillensis* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. **6**: 451. 1824. (Type: Peru, *Humboldt s.n.*)

Perennial climber, stems to 4 m long, rooting at the nodes. Stipules oblong-ovate, 3-5 mm long, striate; petioles 1.5-13 cm long; leaflets ovate or rhomboid, 2.5-14 cm long, 1.6-8 cm wide, apex rounded to acuminate, base rounded, sparsely pubescent, veins often raised and reticulate. Inflorescence dense, 6-12-flowered, peduncle 1-25 cm long, pedicels 2-3 mm long, calyx tube 3-4 mm, the lower lobes falcate or lanceolate 3-4 mm long; standard orbicular, 1.2-2.3 cm long, white, rose, light purple, often with purple veins and green line outside; keel white or blue, spirally incurved. Legume linear-oblong, 7.5-14 cm long, 0.7-1.4 cm wide, 9-15-seeded, glabrous or pubescent; seeds reniform, 5.5-7 mm long, 4.5-5.5 mm wide, 2.5-3.5 mm thick, reddish brown, hilum white, 1.2 mm long.

GENERAL DISTRIBUTION: Pantropical.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!, Grenada!, Barbados!.

Vigna antillana (Urban) Fawcett & Rendle, Fl. Jamaica 4(2): 69. 1920.

- Basionym: *Phaseolus antillanus* Urban, Symb. Antill. 4: 309. 1905.
Lectotype: Cuba, Wright 1594 (GH).

Herbaceous climber. Stipules triangular oblong, 3-4 mm long, not extended at the base; petiole 10-14 cm long; leaflets triangular to ovate-oblong, 5-7 cm long, 3-5 cm wide, apex long acuminate, base subtruncate, short pilose to glabrous below, lateral leaflets oblique. Peduncle 7-30 cm long, flowers 2 at swollen nodes, calyx 5-6 mm long, lobes triangular to ovate and obtuse, half as long as the tube; standard 20 mm long, 17 mm wide, clawed with 2 basal lobes, keel curved about 1/3; legume 8-13 cm long, 4-5 mm wide, apical rostrum 6-10 mm long; seeds oval-reniform, 3.5-4 mm long, 2.5 mm wide, brown, hilum medial.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Martinique, St. Vincent!.

NOTE: Piper (Torreya 12: 190. 1912) referred this species to *V. unguiculata*, misinterpreting *Phaseolus unguiculatus* L. (see Urban, Repert. Spec. Nov. Regni Veg. 15: 320. 1918).

Vigna hosei (Craib) Backer in Backer & Slooten, Geill. Handb. Jav. Theeonkr. 153. 1924.

- Basionym: *Dolichos hosei* Craib, Bull. Misc. Inform. 1914: 76. 1914.
Type: Sarawak, although described from a cultivated plant.

Twining or creeping herb, commonly rooting at the nodes, stems to 2 m long often forming dense mats, stems with long scattered hairs. Stipules cordate at base; petiole 2-5 cm long; leaflets elliptic to obovate-oblong, 2-5 cm long, 1.4-3 cm wide, apex acute to obtuse, base rounded, laterals oblique. Inflorescence with peduncle 1.5-4 cm and flowering rachis 0.5-1 cm; pedicels 1.7-2.2 mm long; flowers 1-few, ca. 1 cm long; calyx tube 1.7-2.2 mm long, pubescent; corolla yellow 0.8 cm long, keel not beaked; ovary hairy. Fruit normally black, oblong 1-2 cm long, 4-4.5 mm wide, 1-2-seeded, finely pubescent.

GENERAL DISTRIBUTION: Tropical Asia, established as a weed in the New World.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Martinique, St. Lucia!.

NOTE: This species is geocarpic in some areas, but such a condition is not described for the few collections seen.

Vigna luteola (Jacq.) Benth in C. Martius, Fl. Bras. 15(1): 194, t. 50 f. 2. 1859.

- Basionym: *Dolichos luteolus* Jacq., Hort. Bot. Vindob. 1: 39, t. 90. 1770.
Type: ibid. t. 90.
Syn.: *Vigna repens* (L.) Kuntze, Revis. Gen. Pl. 1: 212. 1891, not Baker.

Prostrate creeping or climbing herb, stems to 2 m, glabrescent to densely hairy. Stipules ovate-lanceolate, 3-4 mm long, 2 mm wide, shortly extended

below the point of insertion and bilobed at the base; petioles 2-8 cm long, leaflets ovate, ovate-elliptic or ovate-lanceolate, rarely linear-ob lanceolate, 2.5-7 cm long, 1-5 cm wide, apex acute or acuminate, base rounded or cuneate, sparsely pubescent. Inflorescence axillary, few-flowered, peduncles 5-20 cm, flowering portion 1.5-5 cm long, pedicels 4-9 mm long; standard yellow or greenish yellow, sometimes tinged with red, 1.3-2.5 cm long. Legume linear 4-8 cm long, 4-6.5 mm wide, slightly constricted between the 6-9 seeds, seeds dark red-brown or gray-brown speckled with black, oblong or ovoid-rhomboid, 3-6 mm long, 3-4 mm wide, 2-3.5 mm thick; aril scarcely developed.

GENERAL DISTRIBUTION: Native of the American tropics but introduced in the Old World tropics.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Saba!, Nevis!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados.

***Vigna unguiculata* (L.) Walp., Repert. 1: 779. 1842.**

Basionym: *Dolichos unguiculatus* L., Sp. Pl. 2: 725. 1753.

Type: Barbados, Hort. Ups.

Syn.: *Vigna sinensis* (L.) Hassk., Pl. Jav. Rar. 386. 1848.

Trailing or climbing herb, stems to 3 m long, glabrous or hairy. Stipules attached by their middles, constricted to this point, upper part lanceolate 0.6-2 cm long, the spur narrower, 2-6 mm long; petioles 1.5-13 cm long; leaflets ovate, rhomboid or lanceolate, the laterals oblique, 1.5-16 cm long, 1-12.5 cm wide, terminal slightly bilobed at base, laterals unilobed, apex subacute to acuminate and mucronulate, base rounded. Inflorescence axillary, few- to several-flowered, peduncles 2-26 cm long, flowering portion 0.5-5 cm long; pedicels 1-4 mm, standard 1.3-3.3 cm long, 1-3.2 cm wide, white, greenish yellow, blue or lilac-purple. Legumes linear-cylindrical, 5.5-90 cm long, 3-11 mm wide, glabrous or roughened; seeds oblong or reniform, white, dark red or black or mottled, 3.4-12 mm long, 2-6.5 mm wide, 2.2-4.5 mm thick; aril slightly developed.

GENERAL DISTRIBUTION: Native of the Old World but represented in cultivation through the tropics.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Guadeloupe, Martinique!, St. Vincent!, Grenada!, Barbados!.

NOTE: This taxon has a number of cultivars such as subsp. *sesquipedalis* with pods to a meter in length. Piper referred *Phaseolus antillanus* Urban to the synonymy of this species. Both Urban and Fawcett & Rendle concluded that Piper had not correctly interpreted *Dolichos unguiculatus* L.

***Vigna vexillata* (L.) A. Rich. in Sagra, Hist. Phys. Cuba, Pl. Vasc. 191. 1841. FIGURE 205.**

Basionym: *Phaseolus vexillatus* L., Sp. Pl. 2: 724. 1753.

Lectotype: Dillenius, Hort. Eltham. t. 234, 302. 1732.

Climbing or trailing herb, stems to 6 m long, sparsely to densely hairy, hairs rusty brown. Stipules lanceolate, 0.5-1.3 cm long, prolonged and slightly cordate at the base; petioles 1.5-11 cm long; leaflets ovate, elliptic to lanceolate, 5-12 cm long, 2-6 cm wide, apex acuminate or acute, base rounded or truncate, pubescent. Inflorescence axillary, with 2-6 flowers, peduncle 4.5-20 cm long, pedicels 1-2 mm, calyx with long brown bristly hairs, lobes acuminate, longer than the tube; standard pink to mauve, 2-3.5 cm long, 2-4 cm wide; keel yellow-green, beak incurved 180° and twisted to one side. Legume erect, linear-cylindrical, 4-12 cm long, 2.5-4 mm wide, covered with brown bristly hairs, 12-18-seeded; seeds brown to dark red with black spotting, oblong 2.5-4.5 mm long, 2.3-2.5 mm wide, hilum acentric, aril scarcely developed.

GENERAL DISTRIBUTION: Native of the New World but widely cultivated in all tropical areas.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique, St. Vincent!, Barbados.

NOTE: The very narrow leaf form so common in the Pacific area is not represented in the West Indies.

ZORNIA J. Gmelin

Zornia J. Gmelin, Syst. Nat. ed. 13, 2: 1076, 1096. 1792.

Perennial herbs, stipules peltate, paired, leaves 2- or 4-foliate; foliage and bracts punctate or epunctate. Inflorescence axillary or terminal, spicate and densely flowered or few-flowered; conspicuously bracteate, flowers yellow to orange, small; calyx campanulate, teeth unequal; standard orbicular, clawed, wings oblong, keel curved, blunt; stamens monadelphous, anthers alternating long and short; ovary sessile, ovules few, style slender, stigma capitate. Legume a loment of 2-8 articles, upper suture straight, lower sinuate, articles indehiscent, pubescent, reticulate-nerved, bristly with apical grapnel and retrorse stiff hairs; seeds ovoid, black or dark brown.

TYPE SPECIES: *Zornia bracteata* J. Gmelin.

A genus of 80 species in all tropical areas.

NOTES: The name *Zornia diphylla* (L.) Pers. has been used commonly for plants in the West Indies, but Mohlenbrock concluded this is a species of limited distribution in Ceylon and southeast Asia. *Zornia latifolia* Sm. is reported by Gooding (p. 220) to be locally abundant in Barbados but no specimens have been seen.

REFERENCE: R. H. Mohlenbrock, Webbia 16: 1-141. 1961.

KEY TO THE SPECIES

1. Inflorescence uninterrupted, the bracts commonly overlapping, loment included within the bracts or barely exserted, bracts 12 x 5-8 mm *Z. reticulata*

1. Inflorescence interrupted or at least the lower half, loment clearly exerted, bracts 5-7 mm long, 2.5 mm wide.
2. Upper leaflets to 1.5 cm long, inflorescence interrupted the full length, bracts epunctate *Z. microphylla*
2. Upper leaflets to 2.5 cm, inflorescence interrupted below, dense at the apex, bracts punctate *Z. gemella*

Zornia gemella (Willd.) J. Vogel, *Linnaea* **12**: 61. 1838.

Basionym: *Hedysarum gemellum* Willd., *Sp. Pl.* **5**: 1178. 1800.

Type: Brazil, *Sellow s.n.*

Stem erect, to 30 cm, stipules ovate to 12 mm long, long acuminate, punctate; lower leaflets ovate to ovate-lanceolate, upper leaflets lanceolate, to 2.5 cm long, 4-6 mm wide, apex acute, base rounded; inflorescence interrupted below, crowded but barely overlapping above, bracts oblong-lanceolate, 7 mm long, 5 mm wide, punctate; loment of 5-7 articles, exerted, slightly reticulate, pilose, bristles hairy.

GENERAL DISTRIBUTION: United States, Costa Rica, Cuba, Jamaica, South America.

DISTRIBUTION IN LESSER ANTILLES: Martinique.

Zornia microphylla Desv., *Mem. Soc. Linn. Paris* **4**: 324. 1826. FIGURE 206.

Neotype: St. Lucia, *Plée s.n.* (P) ex Mohlenbrock.

Stems prostrate, to 40 cm long, glabrous. Stipules ovate, 3-4 mm long, acute, epunctate; lower leaflets ovate to oval, 5-10 mm long, upper lanceolate to linear, 12-15 mm long, 5-8 mm wide, apex acute, base rounded. Inflorescence interrupted, the bracts clearly separated, bracts elliptic-lanceolate, 4-5 mm long, 2.5 mm wide, epunctate; loment of 3-5 articles, exerted, articles pubescent, reticulate, spinose with retrorse hairs.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe, Les Saintes!, Dominica!, Martinique!, St. Lucia, Grenada!, Barbados.

Zornia reticulata Smith *in* Rees, *Cycl.* **39**: 2. 1819.

Neotype: Jamaica, *Harris 12070* (US) ex Mohlenbrock.

Stems prostrate to erect, to 60 cm long. Stipules lanceolate, 8-20 mm long, acuminate, auricle to 3.5 mm long; lower leaflets broadly lanceolate to ovate-lanceolate, upper leaflets lanceolate to linear, 1.5-3.5 cm long, 5-10 mm wide, apex acuminate, base rounded. Inflorescence crowded, the bracts overlapping, bracts lanceolate to 12 mm long, 8 mm broad, auricle to 3.5 mm long, apex acute to acuminate, sparsely punctate to epunctate. Loment of 4-7 articles, shorter than the bracts or barely exceeding them, articles reticulate, pilose, bristles retrorsely pubescent.

GENERAL DISTRIBUTION: United States, Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: St. Kitts!, Montserrat!.

OXALIDACEAE

OXALIDACEAE R. Br. *in* Tuckey, Narr. Exped. Zaire 433. 1818.

Herbs or subshrubs with fibrous roots, rootstocks or aggregates of scaly bulbs. Stipules minute to lanceolate, often scarious, caducous. Leaves alternate, petiolate, digitately or pinnately 3-foliolate; leaflets mostly obcordate. Inflorescence axillary or terminal, pedunculate, cymose, umbellate or rarely with single flowers; flowers bisexual, actinomorphic, often heterostylous; sepals 5, mostly free, often with apical glands or callosities; petals 5, conspicuous, yellow, pink, purple or rarely white; stamens 10; ovary superior 5-loculed, ovules 1 or more in each locule, styles 5. Fruit a capsule, usually columnar, glabrous or variously pubescent; seeds with a white aril, flattened, longitudinally grooved or variously transversely ridged or foveolate.

TYPE GENUS: *Oxalis* L.

OXALIS L.

Oxalis L., Sp. Pl. 1: 433. 1753.

Characters of the family.

TYPE SPECIES: *Oxalis acetosella* L.

A genus of perhaps 800 species with temperate and tropical distribution worldwide at all elevations.

REFERENCES: M. Denton, Publ. Mus. Michigan State Univ., Biol. Ser. **4**(10): 455-615. 1973. A. Lourteig, Phytologia **29**: 449-471. 1975; Phytologia **42**: 57-198. 1979; Ann. Missouri Bot. Gard. **67**: 823-850. 1980. J. K. Small *in* N. Amer. Fl. **25**(1): 325-58. 1907.

KEY TO THE SPECIES

1. Leaves pinnately 3-foliolate; leaflets with apex entire or slightly emarginate.
 2. Erect herb, stems without prominent leaf scars; cymes bifid, each branch elongating; flowers pink or white *O. barrelieri*
 2. Erect subshrub, stems woody, stout, with prominent leaf scars; cymes tightly clustered; petals yellow *O. frutescens*
1. Leaves digitately 3-foliolate, leaflets truncate or distinctly lobed at apex.
 3. Plants with erect and trailing stems; sepals without apical glands; flowers yellow *O. corniculata*
 3. Plants acaulescent, from clusters of underground scaly bulbs; sepals with 2 apical glands or callosities; flowers pink or rose-purple.

4. Leaflets obcordate, narrowly and deeply emarginate, lobes rounded; bulblets basally clustered *O. debilis* var. *corymbosa*
4. Leaflets subtruncate, broadly 2-lobed, lobes triangular and obtuse; bulblets formed at ends of stolons *O. latifolia*

***Oxalis barrelieri* L., Sp. Pl. ed. 2, 1: 624. 1762.**

Type: Barrelier, Plant Rar. t. 1139.

Annual herb, roots fibrous, erect branching stem to 60 cm. Leaves pinnately 3-foliolate with petioles 3.5-5 cm long; leaflets ovate to ovate-oblong, 1.5-4.5 x 0.8-2.4 cm, base rounded, apex acute, terminal leaflet largest, sparsely pubescent below. Inflorescence bifid, cyme branches to 5 cm, peduncle 5 cm; sepals 4 mm; petals obovate 6-7 mm, pink with yellow and orange markings at base. Capsule obovoid-oblong, 6 mm, 5-angled, apex acute, glabrous; seeds 1.5 mm, reddish brown.

GENERAL DISTRIBUTION: Central America, Hispaniola, Puerto Rico, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat! Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Trèfle, oseille-savane, oseille-marron.

***Oxalis corniculata* L., Sp. Pl. 1: 435. 1753.**

Type: Undecided.

Syn.: *Oxalis repens* Thunb., *Oxalis* 16. 1781. (Type: Africa, Thunberg 11118 (UPS).)

Oxalis grenadensis Urban, Symb. Antill. 7: 233. 1912. (Type: Grenada, Eggers 6219b.)

Fibrous rooted annual with erect flowering branches and spreading rooted branches. Leaves digitately 3-foliolate with petioles 3-4 cm long, pilose, leaflets obcordate 8-18 mm long and broad, puberulous, margins ciliate. Inflorescence peduncles 2-4.5 cm, pedicels to 1.5 cm; sepals 3-4 mm; petals 7-8 mm, yellow. Capsule oblong, 9-12 mm, beaked; seeds 1.3 mm, brownish red.

GENERAL DISTRIBUTION: Established worldwide as a weed.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Sour grass, trèfle, petit oseille-savane, petit trèfle.

NOTES: Lourteig (1979) recognized several subspecific taxa of *O. corniculata* including *O. corniculata* ssp. *corniculata* var. *villosa* (M. Bieb.) Hohen. with pubescent leaves from Antigua and *O. corniculata* L. ssp. *corniculata* var. *atropurpurea* Planchon with reddish foliage color. *O. grenadensis* Urban is regarded as a synonym of the latter variety.

***Oxalis debilis* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 236. 1821 var. *corymbosa* (DC.) Lourteig, Ann. Missouri Bot. Gard. 67: 840. 1980.**

Basionym: *Oxalis corymbosa* DC., Prodr. 1: 696. 1824.

Type: *Martius s.n.* (holotype, G).

Syn.: *Oxalis martiana* Zucc., Denkschr. Königl. Akad. Wiss. München 9: 144. 1825.
(Lectotype: Brazil, *Martius s.n.* (M).)

Acaulescent herb developing from a cluster of scaly bulbs. Leaves digitately 3-foliolate with petioles 10-20 cm long, pilose, leaflets suborbicular to broadly obcordate, 2-4 x 2.3-5.5 cm, apex narrowly and deeply emarginate, lobes rounded. Inflorescence of compound cymes, peduncles 15-30 cm, pedicels 1-3 cm; sepals 4.5-6 mm with 2 yellow glands at apex; petals violet to rose, 11-15 mm. Capsule cylindric, to 17 mm.

GENERAL DISTRIBUTION: Neotropical in origin but widely cultivated, persisting or escaping.

DISTRIBUTION IN LESSER ANTILLES: Saba!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Shamrock, grand trèfle, herbe de vaachelet.

NOTE: This plant is not known in fruit from the Lesser Antilles, and fruits infrequently elsewhere.

***Oxalis frutescens* L., Sp. Pl. 1: 435. 1753.**

FIGURE 207.

Type: Martinique, *Plumier*, Pl. Amer. t. 213, f. 1. 1759.

Syn.: *Oxalis plumieri* Jacq., Oxalis 23. 1794. (Type: *ibid.*)

Woody subshrub from fibrous roots, erect stem to 80 cm, branched near top, bearing prominent leaf scars. Leaves pinnately 3-foliolate with petioles 3-4 cm long, pilose, leaflets broadly oblong 1.5-2.5 x 0.8-2 cm, ciliate-margined, base cuneate to rounded, apex obtuse, slightly emarginate. Inflorescence of fascicled cymes or these subumbellate, peduncles 3 cm; sepals 3-4 mm, tipped with cluster of hairs; petals 9-11 mm, yellow. Capsule oblong, 7 mm, ciliate on the ridges; seeds dark brown, 1.5 mm.

GENERAL DISTRIBUTION: Mexico, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!.

COMMON NAME: Oseille-bois jaune.

***Oxalis latifolia* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 184. 1822.**

Type: Mexico, *Bonpland s.n.* (holotype, P).

Syn.: *Oxalis intermedia* A. Rich. in Sagra, Hist. Phys. Cuba, Bot. Pl. Vasc. 129. 1845.
(Type: Cuba, *Sagra s.n.* (holotype, P).)

Acaulescent herb from cluster of scaly bulbs. Leaves digitately 3-foliolate with petioles 15-30 cm long, sparsely pilose, leaflets obdeltoid, 2-3.5 x 2-6 cm, 2-lobed, base cuneate, apex subtruncate. Inflorescence cymose, 4-13-flowered, peduncles 15-30 cm, pedicels 1-2 cm; sepals 4-5 mm with 2 basally lobed glands near apex;



FIGURE 207. *Oxalis frutescens*, x 0.7.

petals violet, 11-14 mm. Capsule narrowly oblong or cylindric, 5-7 mm, long-beaked, glabrous; seeds brown, 1-1.2 mm.

GENERAL DISTRIBUTION: Central America, Cuba, Puerto Rico, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!.

COMMON NAMES: Oseille-marron, grand trèfle.

CULTIVATED TAXA AND EXCLUDED SPECIES

Averrhoa bilimbi L. (bilimbi) and *Averrhoa carambola* L. (Carambola). Both species are trees with imparipinnate leaves, cauliflorous inflorescences and fleshy edible fruits, and have been cultivated in botanic gardens on several islands. *A. bilimbi* was introduced by Capt. Bligh in 1793 to St. Vincent, but *A. carambola* was obtained by Anderson on St. Vincent from the French islands in 1794.

Oxalis dispar N. E. Brown. A specimen so identified from the Dominica Botanic Garden has been annotated as *O. psoraleoides* HBK by Lourteig.

Oxalis rugeliana Urban (Symb. Antill. 7: 234. 1921) was based on *Rugel 388* made in 1849 along the Rio San Juan in Cuba. Lourteig (Phytologia 42: 165, 166. 1979) stated the type was from Santo Domingo, but later in the same description, from St. Johns, Antigua. Rugel, according to Urban (Symb. Antill. 3: 115. 1902), collected in Cuba in 1849, but Urban does not mention any journeys to Santo Domingo or Antigua. The species is not mentioned in the Dandy & Box manuscript, Flora of Antigua and Barbuda, and we have seen no specimens from Antigua.

Oxalis sepium St. Hilaire, a Brazilian species with yellow flowers, was reported by Grisebach (1859) from Dominica (*Imray s.n.*) and St. Vincent (*Guilding s.n.*) as well as from Guadeloupe and Martinique. Duss (1897) reported the species to be cultivated and wild. It is probable that the old records are of cultivated plants. The species is similar to *O. barrelieri* and may in fact be a synonym of it.

HUMIRIACEAE

by George Staples

HUMIRIACEAE A. L. Juss. in A. St. Hil., Fl. Bras. Merid. 2: 87. 1829, nom. cons.

A single member of the Humiriaceae is known to have been cultivated in the Lesser Antilles. This family is predominantly American neotropical, with a few species in tropical West Africa. *Sacoglottis amazonica* C. Martius, an Amazonian species, was grown in the botanical garden on St. Vincent (*Guilding s.n.*, K) during the 1800's. This is a medium-sized tree with thinly coriaceous leaves, axillary, pedunculate inflorescences, and oblong-ellipsoid, dark purplish drupes. The plants grow in flooded forests, chiefly estuarine coastal forests, in the Amazon and Orinoco drainages.

While there is no evidence that this species survives in the Lesser Antilles today, the endocarps are one of the most common elements in the drift flora of the islands. Cuatrecasas (Contr. U.S. Natl. Herb. 35: 35. 1961) reports the collection of the ellipsoid, 10-sulcate, bullate and woody endocarps from the islands of Dominica, St. Vincent, Mustique, Grenada, and Barbados. Gunn (World Guide

to Tropical Drift Seeds and Fruits 116. 1976) comments that no one has explained why this species has failed to become established on the Caribbean islands. He calculates the buoyancy of these endocarps as at least two years, and 30% of the endocarps contain viable seeds. The buoyancy of the endocarps is due to hollow cavities in the fruit wall. Initially filled with resin, these cavities remain air-filled after the resin deteriorates, and the endocarps float long enough to be carried to the British Isles and northern Europe. Indeed, drift endocarps of *Sacoglottis amazonica* were described by Clusius in 1605; the identity and origin of these drift objects was a mystery for the next three centuries.

ERYTHROXYLACEAE

by Timothy Plowman

ERYTHROXYLACEAE Kunth *in* Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 135. 1822.

Glabrous shrubs or small trees; leaves alternate, simple, stipulate, petioled, entire, bilineate or not below; cataphylls and stipules often imbricate on young shoots or persistent on branchlets; flowers small, heterostylous, solitary or fascicled in axils, with minute scarious bracteoles, pedicelled; calyx persistent, cleft into 5 lobes; petals free, 5, appendaged by 2-lobed ligules within; stamens 10, in 2 series, united below by their filaments into a short tube which is often 10-crenulate; ovary usually 3-celled; ovules 1 in each cavity; styles 3, free or sometimes connate; stigmas capitellate; fruit drupaceous, 1-seeded, endocarp 1- or 3-celled but with only 1 fertile cell, smooth or sulcate.

REFERENCES: N. L. Britton, N. Amer. Fl. 25: 59-66. 1907. O. Schulz *in* Urban, Symb. Antill. 4: 313-314. 1905; 5: 188-211. 1907a; *in* Engler, Pflanzenr. 4(134): 1-176. 1907b.

A single genus *Erythroxylum* in the New World.

ERYTHROXYLUM P. Browne

Erythroxylum P. Browne, Civ. Nat. Hist. Jamaica, ed. 1. 278. 1756.

Syn.: *Erythroxylon* L., Syst. Nat. ed. 10, 2: 1035. 1759.

Characters as given for family.

TYPE SPECIES: *Erythroxylum areolatum* L.

A genus of more than 230 species, most of which are tropical American.

KEY TO THE SPECIES

1. Leaves abruptly acuminate; twigs densely "scaly" with persistent, imbricate cataphylls; stipules laterally striately nerved; drupe 12-18 mm long *E. squamatum*
1. Leaves obtuse, rounded or emarginate; twigs not densely "scaly"; stipules smooth, not striately nerved; drupe less than 10 mm long.

2. Lower leaf surface with 2 lines parallel to midrib; stipules thin, early disintegrating *E. novogranatense*
2. Lower leaf surface without 2 lines parallel to midrib; stipules firm, persistent.
 3. Leaves drying tawny below; flowers appearing on new leafy shoots; drupe terete, not sulcate, at maturity *E. oxycarpum*
 3. Leaves drying pale green or glaucous below; flowers appearing on seasoned shoots, often before leaves; drupe sulcate at maturity.
 4. Leaf blade usually more than 35 mm long; petiole 2.5-5 mm long, pedicels usually 5-12 mm long *E. havanense*
 4. Leaf blade usually less than 30 mm long; petiole 0.8-2 mm long; pedicels usually 2.5-3 mm long *E. brevipes*

Erythroxyllum brevipes DC., Prodr. 1: 573. 1824.

Type: Puerto Rico, *Bertero s.n.* (lectotype designated here, G-DC; isotypes, B, G-DC, MO).

Dominican Republic (Santo Domingo), *Bertero s.n.* (lectoparatype, G-DC).

Syn.: *Erythroxyllum brevipedatum* St. Lager, Ann. Soc. Bot. Lyon 7: 125. 1880, *nom. illegit.* (Type: not specified.)

Erythroxyllum brevipes DC. forma *grandifolium* O. Schulz in Urban, Symb. Antill. 4: 313. 1905. (Type: not specified.)

Erythroxyllum brevipes DC. forma *parvifolium* O. Schulz in Urban, Symb. Antill. 4: 313. 1905. (Type: not specified.)

Erythroxyllum ovatum Cav. var. *angustifolium* O. Schulz in Urban, Symb. Antill. 5: 208. 1907. (Type: St. Barthélemy, *Forsström s.n.* (holotype, s).)

Erythroxyllum rhamnoides Peyr. ex O. Schulz in Urban, Symb. Antill. 5: 206. 1907, *nomen nudum*.

Much branched shrub or small tree to 8 m tall. Branchlets ca. 1.5 mm in diameter, strongly differentiated into long and short shoots, erect-spreading, distichous, often closely spaced and parallel, light reddish brown, becoming light tan or grayish in age, with lenticular to elongate lenticels, becoming longitudinally cracked. Cataphylls scattered on long shoots or congested on short shoots, persistent, similar to foliar stipules turning dark brown with age. Stipules persistent, 1.5-3 mm long, triangular, obtuse at apex, 2-setulose, estriate, turning dark brown with age. Leaves deciduous, 1 to 4 produced at tips of short shoots or scattered on long shoots, very short-petiolate, blades 8-30 x 5-18 mm, obovate to elliptic, acute at base, rounded or slightly retuse and mucronulate at apex, chartaceous, adaxially medium green, abaxially very pale glaucous dull on both surfaces, elineate, lateral nerves 9 to 12 per side, petiole 0.8-2 mm long. Flowers borne in axils of leaves or cataphylls on leafless seasoned twigs just prior to new flush, rarely on leafy shoots, 1 to 3 per node. Bracteoles 1.5 mm long, ovate, concave, acuminate at apex. Pedicels 2.5-3 (5) mm long. Calyx 1.5-2 mm long, divided ca. 2/3 its length, lobes triangular or triangular-ovate, acute or acuminate at apex. Petals broadly oblong, 2-2.5 x 1.5-2 mm. Staminal cup much shorter than calyx lobes, 10-crenulate or entire at margin. Drupe oblong-ellipsoid, obtuse at apex, 7-8 mm long, 3-4 mm in diameter, endocarp unequally 4-sulcate.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Virgin Islands (U. S. and British) and St. Barts.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!.

NOTES: *Erythroxylum brevipes* is closely related to *E. havanense* Jacq. from which it differs by much smaller leaves, shorter petioles and shorter pedicels. Fournet (1978) treated small-leaved forms of *E. havanense* from Martinique and Guadeloupe as this species and pointed out difficulties in determining some specimens as one species or the other. For the time being, I am treating *E. brevipes* as a distinct species that occurs in Hispaniola, Puerto Rico and the Virgin Islands. Only two collections of *Erythroxylum* are known from St. Barts, one resembling *E. brevipes*, the other with larger leaves resembling *E. havanense*. Further collections from the northern Lesser Antilles are required to show the relationships between these two closely related taxa.

***Erythroxylum havanense* Jacq., Enum. Syst. Pl. 21. 1760.**

Type: Cuba. No specimen known. Lectotype designated here: Jacq., *Select. Stirp. Amer. Hist. t. 87, fig. 2.* 1763.

Syn.: *Erythroxylum ovatum* Cav., *Diss. 404. t. 233.* 1789. (Type: "America, unicum exemplar apud D. de Jussieu," not located. Lectotype designated here: *Plate 233* of Cavanilles.)

Erythroxylum obtusum DC., *Prodr. 1: 574.* 1824. (Type: Cuba, *Humboldt & Bonpland s.n.* (P, n.v.).)

Erythroxylum ovatum Cav. var. *splendens* O. Schulz in Urban, *Symb. Antill. 5: 208.* 1907. (Syntypes: St. Vincent, *Eggers 7006* (B, destroyed); Barbados, *Eggers 7168* (B, destroyed); Tobago, *Eggers 5675* (B, destroyed). No syntypes found at C or H.)

Erythroxylum havanense Jacq. var. *continentis* O. Schulz in Engl., *Pflanzenr. 4(134): 92.* 1907. (Syntypes: Costa Rica, *Tonduz 13886* (lectotype designated here, K; islectotypes, B, destroyed, G, LE); Colombia, *H.H. Smith 1709 (pars)* (lectoparatypes, A, DUKE, F, GH, NY, US); Ecuador, *Eggers 13325* (lectoparatypes, B, destroyed, L).)

Erythroxylum chiapense Lundell, *Wrightia 4: 175.* 1971. (Type: Mexico, *Matuda 5902* (holotype, LL).)

Bushy shrub or tree to 6 m tall. Branchlets 1.5-2 mm in diameter, weakly differentiated into long and short shoots, erect-spreading, more or less distichous, smooth, light grayish brown to dark reddish brown, dotted with whitish punctate or elongate lenticels, becoming longitudinally cracked with age. Cataphylls persistent, few produced at base of long shoots or congested on short shoots, similar to foliar stipules, turning dark brown with age. Foliar stipules persistent 2-3.5 mm long, triangular-ovate, estriate, acute and 2-setulose at apex, drying reddish brown. Leaves deciduous, tardily so in wetter areas, scattered on long shoots or 1 to 3 produced at tips of short shoots, short-petiolate, blades (30) 35-80 x (12) 15-40 mm, obovate, elliptic or oblong, acute at base, rounded, obtuse or slightly retuse at apex, chartaceous, adaxially medium green, dull, abaxially very pale green or glaucous, elineate, lateral nerves 12 to 14, petiole 2.5-5 mm long. Flowers borne in axils of leaves or cataphylls on leafless seasoned twigs just prior to leaf flush, rarely on leafy twigs, 1 to 8 per node. Bracteoles ca. 1.5 mm long, ovate, acuminate at apex. Pedicels (3) 5-12 mm long. Calyx 1.5-2 mm long; divided 2/3 its length, lobes triangular-ovate, acute or acuminate at apex. Petals oblong-ovate, 2-2.8 x 1.5-2 mm. Staminal cup much shorter than to equaling the calyx lobes, entire or rarely 10-denticulate at margin. Drupe oblong

or oblong-ovoid, obtuse or rarely acute at apex, 6-9 mm long, 3-4 mm in diameter, endocarp unequally 4-sulcate.

GENERAL DISTRIBUTION: Cuba, Lesser Antilles, Mexico to Panama, Colombia, Ecuador, Venezuela, Trinidad and Guyana.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Saba!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, La Désirade!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Barberry, bois marbré bâtard, bois vinette, brésillette, café diable, cerisier bâtard, lionwood, vinette.

NOTES: Dry, thorny scrub forest, deciduous seasonal forest, dry woods on rocky slopes, secondary woodlands, coastal hillsides, littoral woodland on metamorphosed limestone and derived soil.

I can find no justification for maintaining *E. ovatum* of the Lesser Antilles as a species separate from the widespread and variable *E. havanense*, which is found in Cuba and throughout the continental circum-Caribbean area from Mexico south to Colombia and east to Guyana. The Lesser Antillean material shows some minor differences in leaf shape and color and in floral proportions, but these differences are inconsistent and insignificant when one examines the variation throughout the extensive range of this species.

In the southern Lesser Antilles in the Grenadines and Grenada, a few collections of this species begin to show characters of the closely related northern South American species *Erythroxyllum cumanense* Kunth: the branchlets are thicker, the leaves become more oblong-elliptic, and the pedicels are shorter. These are retained here as *E. havanense*. However, distinct small-leaved forms from the northernmost part of the archipelago (St. Barts) are recognized as a distinct species *E. brevipes* (see above). Delimitation of species distribution in this complex array of taxa must await further study and field work.

Duss (1897) treated *E. havanense* as a synonym of *E. ovatum* and cited "*E. obtusum* Desc." as a separate species with "*E. areolatum* Poepp." as a synonym. Of the various specimens cited by Duss for these names, only Duss 661a (NY) from Martinique has been located, and it corresponds to *E. havanense*. It is likely that both of these "species" listed by Duss apply to forms of *E. havanense*. This is further supported by his observation that he found many intermediates between the "species" that he thought might be hybrids.

Erythroxyllum novogranatense (Morris) Hieron., Bot. Jahrb. Syst. **20**(Beibl. 49): 35. 1895.

Basionym: *Erythroxyllum coca* Lam. var. *novogranatense* Morris, Bull. Misc. Inform. **5**: t. 2. Jan. 1889.

Type: England, Royal Botanic Gardens, Kew, cultivated plant grown from seed sent by A. Dixon reportedly from Peru in 1869 and illustrated in *The Garden* **9**: 445. 1876. Lectotype: *without collector* (lectotype designated here, K).

Syn.: *Erythroxyllum coca* Lam. var. *spruceanum* Burck, Teysmannia **1**: 456. t. 2. 1890. (Type: Indonesia, Bogor Botanical Garden, no date, *without collector* 9 (holotype, BO; probable isotypes, L, U).)

Erythroxylum novogranatense (Morris) Hieron. var. *tobagense* O. Schulz in Urban, Symb. Antill. 5: 200. 1907. (Type: Tobago, *Eggers 5831* (holotype, B, destroyed; isotypes, A, K, NY).)

Erythroxylum novogranatense (Morris) Hieron. var. *microphyllum* O. Schulz in Engl., Pflanzenr. 4(134): 87. 1907. (Type: Brazil, *Glaziou 18160* (holotype, B, destroyed; isotypes, C, K, P).)

Shrub or small tree to 6 m tall. Branchlets ca. 2 mm in diameter, without short shoots, flexuous, appearing zigzag, reddish brown, lenticels punctate or absent, if present rarely breaking surface. Cataphylls lacking or few, if present resembling foliar stipules. Foliar stipules 2.5-3.5 mm long, narrowly ovate to triangular, acute to obtuse at apex, minutely 2-setulose, membranaceous, estriate, soon withering and disintegrating. Leaves persistent, scattered on twigs, short-petiolate, blades 25-75 x 12-36 mm, elliptic to obovate or oblong, base acute to attenuate, apex obtuse, rounded, or retuse, firm-membranaceous, adaxially bright yellowish green when fresh, abaxially very pale green, drying pale green or yellowish and dull on both surfaces, abaxially with 2 lines parallel to midrib delimiting a distinct "central panel," major lateral nerves 10 to 15, petiole 2-5 mm long. Flowers borne in axils of last season's twigs, with or without leaves, 1 to 3 (10) per node. Bracteoles 1-1.5 mm long, cymbiform-deltoid, acuminate at apex. Pedicels 3-12 mm long. Calyx 1.5-2.5 mm long, divided 1/2 to 5/6 its length, lobes narrowly to broadly ovate, acute to acuminate at apex. Petals ovate-oblong, 2.5-6 x 2-3.4 mm. Staminal cup equaling calyx to 1/2 its length, entire to sub-erose at margin. Drupe ovoid to ellipsoid, rounded or obtuse at apex, 8-13 mm long, 4-7 mm in diameter, endocarp unequally 4-sulcate.

GENERAL DISTRIBUTION: Native to Colombia, now cultivated in many tropical countries.

DISTRIBUTION IN LESSER ANTILLES: Martinique!, Guadeloupe!, Grenada!.

COMMON NAME: Coca.

NOTES: Duss (1897) listed this species as *Erythroxylum coca* Lam. based on his collection *Duss 1812* (E, NY). The plant was introduced into Guadeloupe and Martinique in 1869 for acclimatization trials as a source of cocaine. Fournet (1978) stated that this species is naturalized in Martinique and Guadeloupe but gave no details of its occurrence on those islands.

Erythroxylum novogranatense originated in Colombia and is still cultivated there for coca chewing by certain remote Indian groups. It plays only a minor role as a source of the alkaloid cocaine, which derives primarily from *Erythroxylum coca* Lam. *Erythroxylum novogranatense* is cultivated throughout the tropics and subtropics as an ornamental shrub and frequently is misidentified as *E. coca*.

Erythroxylum oxycarpum O. Schulz in Urban, Symb. Antill. 5: 203. 1907.

Type: Grenada, *Broadway 1778* (lectotype designated here, GH; isolecotypes, B, destroyed, BR; E, G, P). Grenada, *Broadway 526* (lectoparatypes, B, destroyed, BR, K); *Broadway 956* (lectoparatypes, B, destroyed, K).

Syn.: *Erythroxylum uniflorum* Rusby, Descr. S. Amer. Pl. 33. 1920. (Type: Colombia, H. H. Smith 788 (holotype, NY; isotypes, A, DUKE, F, G, GH, MICH, MO, MPU, NY, P, TEX, WIS).)

Shrub or small tree. Branchlets 1-1.5 mm in diameter, without short shoots, erect-spreading, distichous, drying dark reddish brown, with small, elongate or punctate lenticels. Cataphylls few at base of new shoots, similar to but firmer than foliar stipules, drying black. Foliar stipules persistent, 2-3 mm long, triangular, estriate, truncate at apex, 2-setulose, setae filamentous, to 1 mm long. Leaves deciduous, petiolate, blades 30-75 x 17-42 mm, elliptic, oblong or subovate, base acute to obtuse, apex rounded, retuse or obtuse, sometimes mucronulate, chartaceous, adaxially drying slightly shiny, lead-gray to ferruginous, abaxially drying dull, tawny to ferruginous, major lateral nerves 13 or 14, conspicuously reticulate-veined, petiole 5-7 mm long, drying reddish brown. Flowers borne in axils of leaves or cataphylls on newly formed twigs, 3 to 10 per node. Bracteoles ca. 1 mm long, ovate, acuminate-setulose and subfimbriate at apex. Pedicels 3-6 mm long, 5-ribbed. Calyx 1.5-2 mm long, divided 1/2 its length, lobes triangular, acute or acuminate at apex. Petals oblong-ovate, 1.5-2 x 1-1.5 mm. Staminal cup 1/2-2/3 as long as calyx, margin subentire. Drupe ovoid, acute at apex, often subfalcate, 8-10 mm long, ca. 4 mm in diameter, endocarp terete, smooth.

GENERAL DISTRIBUTION: Grenada, northern coast of Venezuela and Colombia, Panama.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

NOTES: "Open places near the sea." Northern South American material of this species has until recently been treated as *Erythroxylum orinocense* Kunth, to which it is most certainly allied. *Erythroxylum orinocense sensu stricto* is here considered to be restricted to the llanos of Venezuela and Colombia. Other close relatives of *E. oxycarpum* are *E. roigii* Britton & P. Wilson of Cuba, *E. incrasatum* O. Schulz of Jamaica and *E. bequaertii* Standley (syn. *E. belizense* Lundell) of Central America. Additional studies are necessary to clarify the relationship of these species to *E. oxycarpum*.

***Erythroxylum squamatum* Sw., Prodr. 75. 1788.**

FIGURE 208.

Type: "Ind. Occ.," Swartz s.n. (holotype, s; isotype, UPS).

Syn.: *Erythroxylum squamatum* Sw. var. *typica* Peyr. in C. Martius, Fl. Bras. 12(1): 158. 1878. (Type: not indicated.)

Erythroxylum aristigerum Peyr. in C. Martius, Fl. Bras. 12(1): 157. 1878. (Type: Brazil, Spruce (129) (lectotype, M; isoelectotypes, BM, CGE, G, OXF, W); Spruce s.n. (176?) (lectoparatypes, G, K, NY, P, W).)

Erythroxylum bahiense Peyr. in C. Martius, Fl. Bras. 12(1): 160. 1878. (Type: Brazil, Blanchet 2331 (lectotype, LE; isoelectotypes, F, K, OXF, P, W).)

Erythroxylum aristigerum Peyr. var. *bahiense* (Peyr.) O. Schulz in Engl., Pflanzenr. 4(134): 103. 1907.

Erythroxylum squamatum Sw. var. *microcarpum* O. Schulz in Urban, Symb. Antill. 5: 192. 1907. (Type: French Guiana, Sagot 1229 (holotype, B, destroyed; isotypes K, P, U).)

Erythroxylum trinerve Huber, Bol. Mus. Paraense Hist. Nat. 5: 417. 1909. (Type: Brazil, *Ducke s.n.* (holotype, MG 8035; isotype, B, destroyed, RB).)

Shrub or small tree to 6 m tall. Branchlets 2-3 mm in diameter, weakly differentiated into short shoots and long shoots, short shoots conspicuously "scaly" with persistent, distichous, imbricate cataphylls, long shoots dark reddish brown to grayish brown, provided with elongate or punctate lenticels. Cataphylls conspicuous, persistent, similar to foliar stipules but firmer in texture, drying dark brown and somewhat diverging from stem with age. Foliar stipules persistent, 2.5-4 mm long, triangular-ovate, obtuse and 3-setulose at apex, subcoriaceous, laterally striate-nerved. Leaves persistent, scattered on twigs, short-petiolate, blades 45-130 x 25-55 mm, oblong to oblong-obovate or elliptic, cuneate to obtuse at base, abruptly acuminate at apex, apex itself obtuse, firmly chartaceous to subcoriaceous, adaxially drying dark green to grayish brown, rather shiny, abaxially drying ferruginous, shiny, abaxially elineate, major lateral nerves 10 to 13, petiole 2-6 mm long, drying black. Flowers borne in axils of cataphylls near apex of current season's short shoots, 1 to 3 per node, often congested. Bracteoles ca. 2 mm long, narrowly triangular, acuminate-setulose at apex. Pedicels 6-13 mm long, 5-angled. Calyx 2-2.5 mm long, divided 1/2 its length, lobes triangular-ovate, subacute at apex. Petals oblong, 4-5 x 2-2.5 mm. Staminal cup equaling or little shorter than calyx, 10-crenate or 10-denticulate at margin. Drupe oblongoid, acute or obtuse at apex, 12-18 mm long, 5-8 mm in diameter, endocarp 6-sulcate.

GENERAL DISTRIBUTION: Lesser Antilles, Trinidad, tropical South America from Colombia to the Guianas, south to Bolivia and Brazil.

DISTRIBUTION IN LESSER ANTILLES: Nevis!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, Grenada!.

COMMON NAMES: Bois café, bois grives, bois rouge à grives, bois piquette, bois rouge, chaud grier, girofma (girofle-mare), grande vinette, grosse vinette, moricypre montagne, piment bâtard, ti feuille, vinette.

NOTES: Primary forest, rain forest at upper elevations; also in seasonal forest. In his worldwide monograph of the Erythroxylaceae, Schulz (1907b) included material of *Erythroxylum squamatum* in two separate sections of the genus, based on the degree of sclerification of the vascular bundles in the stipules ("stipular striations"). West Indian and Guianan specimens were treated as *E. squamatum* in sect. *Rhabdophyllum* and other South American material as *E. aristigerum* Peyr. in sect. *Archerythroxylum*. The plants are identical in all other details. Whereas in most species of *Erythroxylum* there is little or no variation in degree of sclerification of stipular bundles, this variation is observed in *E. squamatum* between West Indian and South American material. Its significance is unknown.

CULTIVATED SPECIES

***Erythroxylum lineolatum* DC., Prodr. 1: 575. 1824.** This species, native to Trinidad and northern South America, was apparently once cultivated in the



FIGURE 208. *Erythroxylum squamatum*, x 0.8.

botanical garden in Martinique, where it was introduced from Trinidad. O. Schulz (in Urban, Symb. Antill. 5: 201. 1907) cited two specimens, *Duss 630* and *Nichols 30*; but both were destroyed at B, and no duplicates have been located. There are no records that *E. lineolatum* has ever been cultivated elsewhere, and the species probably does not occur in the wild in the Lesser Antilles.

ZYGOPHYLLACEAE

ZYGOPHYLLACEAE R. Br. in Flinders, Voy. Terra Austr. 2: 545. 1814.

Annual or perennial diffuse or prostrate herbs or hard-wooded trees; nodes characteristically swollen and angled. Stipules interpetiolar, membranaceous or becoming woody and sharp pointed. Leaves opposite, often distichous, one of a pair alternately reduced or aborted; pinnate; leaflets entire, often inequilateral. Inflorescences axillary or terminal, peduncles 1 or 2, flowers perfect, regular or nearly so; sepals 5, free or connate at base; petals 5, free, stamens twice as many as petals, filaments subulate, outer series larger; carpels 2 to 5, ovary sessile or short stipitate, sulcate, angled or winged; ovules solitary or several. Fruit capsular, often angled, dehiscent or splitting into few to several, smooth or spiny nutlets; seeds with aril or without.

TYPE GENUS: *Zygophyllum* L.

REFERENCE: A. M. Vail and P. A. Rydberg, N. Amer. Flora 25: 103-116. 1910.

KEY TO THE GENERA

1. Trees; petals blue or purple; fruit 2-5-lobed fleshy capsule yellow or orange, seeds with conspicuous arils *Guaiacum*
1. Herbs, stems prostrate; petals mostly yellow.
 2. Leaflets 6 to 9 pairs, upper similar in size; fruit separating into 5 nuts, each spiny and with 3 to 5 1-seeded compartments *Tribulus*
 2. Leaflets 3 (4) pairs, upper larger and directed forward; fruit separating into 8 to 12 1-seeded nutlets, these tubercled or warty *Kallstroemia*

GUAIIACUM L.

Guaiacum L., Sp. Pl. 1: 381. 1753.

Trees. Stipules minute, caducous; leaflets 2 or 3 pairs, entire, inequilateral at least at base. Flowers peduncled; sepals 4 or 5, broadly ovate, often lighter margined; unequal; petals obovate, 4 or 5, blue or purple, slightly clawed; stamens 8 to 10 on inconspicuous disc, filaments filiform; pistil of 2 to 5 carpels, ovary short-stalked, 2-5-lobed and 2-5-celled, ovules 8 to 10 in each locule. Fruit with 2 to 5 wings, septicidal; seed solitary, enclosed in fleshy aril.

TYPE SPECIES: *Guaiacum officinale* L.

A genus of 6 species of tropical America, noted for the hard resinous wood.

Guaiacum officinale L., Sp. Pl. 1: 381. 1753.

FIGURE 209.

Type: Not designated from Herb. Cliff. 187 (BM) or Herb. Burser. XXIII:55 (UPS).

Tree to 10 m. Stipules 1 mm, caducous; leaves 3-9 cm long, leaflets 4 to 6, oval to broadly obovate, 1-4.5 x 1-2.5 cm, glabrous, base rounded and inequilateral, apex rounded. Inflorescence terminal, peduncles to 3 cm; sepals ovate to orbicular, 4-5 mm; petals narrowly obovate, 12-13 x 7-8 mm, tomentulose, blue, rarely pale blue or white. Fruit flattened, 16-22 mm broad, yellow or orange; seeds ellipsoidal, 10-12 x 6 mm, aril bright red.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles, Venezuela, Colombia.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Lignum vitae, gaiac, mánlira, bois saint.

NOTE: Lignum vitae has been harvested for many years, and native stands are near extinction on many islands. Collectors often refer to single trees and these often near buildings suggesting cultivation or protection.

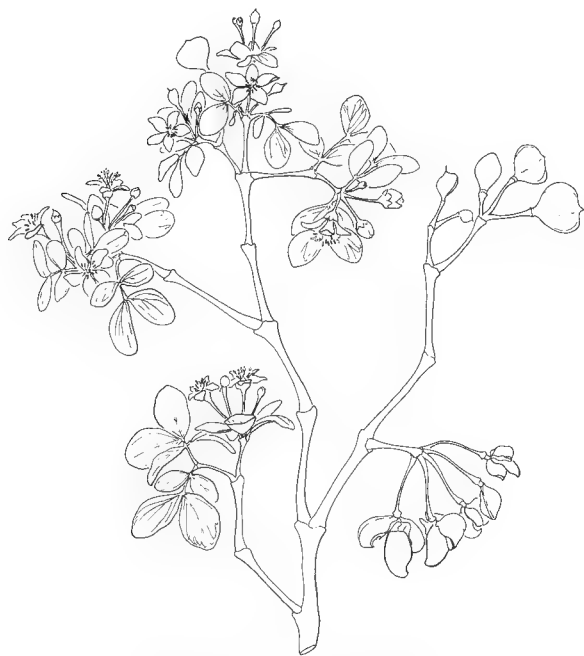


FIGURE 209. *Guaiacum officinale*, x 0.4.



FIGURE 210 (upper). *Kallstroemia maxima*, x 0.5. FIGURE 211 (lower). *Tribulus cistoides*, x 0.5.

KALLSTROEMIA Scop.

Kallstroemia Scop., Intr. Hist. Nat. 212. 1777.

Herbs with procumbent stems. Stipules subulate; leaves pinnate, opposite with one of each pair alternately smaller or aborted; leaflets oblique. Flowers axillary, solitary, pedunculate, sepals 5 or 6, lanceolate; petals 4 to 6, obovate or obcordate, caducous; stamens 10 to 12, inner smaller and with basal gland; ovary sessile, 8-12-celled. Fruit 8-12-angled, muricate or tuberculate, breaking into 8 to 12 indehiscent 1-seeded nutlets, leaving persistent axis; seeds obovate.

TYPE SPECIES: *Tribulus maximus* L. = *Kallstroemia maxima* (L.) Torrey & A. Gray.

REFERENCE: D. M. Porter, Contr. Gray Herb. **198**: 1-152. 1969.

A genus of perhaps 23 species in the New World tropics and subtropics, and in Australia.

KEY TO THE SPECIES

Ovary, style, fruit and beak glabrous *K. maxima*
Ovary and fruit body pubescent, style and beak glabrous to pubescent *K. pubescens*

Kallstroemia maxima (L.) Torrey & A. Gray, Bot. Beechey Voy. 282. 1838.

FIGURE 210.

Basionym: *Tribulus maximus* L., Sp. Pl. 1: 386. 1753.

Lectotype: Hort. Cliff. (BM).

Diffusely branched annual, stems prostrate to 60 cm. Stipules linear-subulate, 5 mm, persistent; leaves 1.8-5 cm, leaflets 3 to 4 pairs, obliquely oblong or oval, often falcate and strongly inequilateral, 5-20 x 2-11 mm, often variable on one plant; apex obtuse, acute or apiculate, appressed pubescent, terminal pair larger and directed forward. Peduncles 1-4 cm, sepals lanceolate 4 mm; petals obovate, 7-8 mm, yellow; ovary turbinate, ridged style conical, 4-5 mm, carpels 10, tuberculate and cross-ridged on back, reticulate on face.

GENERAL DISTRIBUTION: Texas, Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Cresson courant, pourpier bâlard, pourpier courant.

Kallstroemia pubescens (Don) Dandy in Keay, Kew Bull. 10: 138. 1955.

Basionym: *Tribulus pubescens* Don, Gen. Hist. 1: 769. 1831.

Type: Ghana, *G. Don s.n.* (BM).

Syn.: *Kallstroemia caribaea* Rydb., N. Amer. Flora 25: 111. 1910. (Type: Montserrat, Shafer 388 (holotype, NY).)

Diffuse annual with prostrate branches to 50 cm, finely pubescent and hirsute. Stipules linear-lanceolate, 3 mm; leaves 3-5 cm long, leaflets 3 pairs, obliquely elliptic or oval, 1-2 x 0.4-1 cm, appressed pubescent above, sparingly hirsute to glabrate below, base rounded, apex rounded or mucronate. Peduncles 1.5-3 cm; sepals linear-lanceolate, 5 mm, hispid; petals obovate, 6-7 mm, white to yellow. Fruit grayish strigose, 4 mm with beak 4 mm, nutlets tuberculate on back, reticulate on face.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Pourpier bâlard

TRIBULUS L.

Tribulus L., Sp. Pl. 1: 386. 1753.

Diffuse herbs, stems prostrate, pubescent. Stipules lanceolate or subulate; leaves pinnate, one of each pair alternately small or aborted, leaflets oblong, similar. Flowers solitary on axillary peduncles; sepals 5, lanceolate, caducous; petals 5, obovate, yellow; stamens 10, inner filaments shorter and with basal gland; ovary sessile, appressed hirsute, 5-celled, with lobed basal disc, ovules 5 to 10 in each locule. Fruit 5-angled, tuberculate or spinose, separating at maturity into 5 bony carpels, each divided by oblique or transverse septae into 3 to 5 1-seeded compartments; seeds oblong-obovate.

TYPE SPECIES: *Tribulus terrestris* L.

A genus of 20 species in the tropics and subtropics.

Tribulus cistoides L., Sp. Pl. 1: 387. 1753.

FIGURE 211.

Lectotype: Hermann, Parad. Bat. t. 236.

Stems to 1 mm, pubescent. Stipules subulate, 5-8 mm; leaves 1-5 cm, leaflets 6 to 9 pairs, obliquely oblong or elliptic, 4-15 x 2-6 mm, pubescent beneath, base rounded, apex acute, obtuse, sometimes mucronulate; peduncles from axils of smaller leaves, 3-4 cm long, sepals lanceolate to 14 mm, petals 2 x 1-2 cm, yellow; ovary hirsute. Fruit of 5 carpels to 1 cm, each 3-5-seeded, each with 1 (2) large divergent spines and smaller scattered ones, and hirsute.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, Antigua!, Guadeloupe!, Marie Galante!, Martinique!, Grenada!.

COMMON NAMES: Herbe soleil, pourpier-bord de mer, herse.

RUTACEAE

RUTACEAE A. L. Juss., Gen. Pl. 296. 1789.

Shrubs or trees, unarmed or armed with stem spines or prickles or single axillary spines, most parts pellucid or punctate glandular, aromatic. Estipulate, leaves opposite or alternate, 1 to 7 digitately compound or 1 to many pinnate, petioles occasionally winged. Flowers perfect or unisexual, plants monoecious or dioecious, or flowers perfect, borne solitarily or clustered or in cymes, racemes or panicles; calyx 3- to 5-merous, imbricate; petals usually 3 to 5, free, imbricate or valvate; stamens as many as petals or numerous, free or united;

disc present, annular; ovary superior, syncarpous or carpels more or less distinct, 1-locular, ovules 1 to several in each locule, style persistent or caducous. Fruit a capsule, drupe, berry or hesperidium or of separating dehiscent follicles, locules often with juice sacs or mucilaginous material, seeds sometimes black and shiny, embryo sometimes green.

TYPE GENUS: *Ruta* L.

REFERENCES: P. Wilson, N. Amer. Fl. **25**: 173-224. 1911. B. Stone in Dassanayake & Fosberg, *Flora of Ceylon* **5**: 406-476. 1985.

KEY TO THE GENERA

1. Fruit dry, of 1 to 5 2-valved follicles.
 2. Leaves pinnately compound, rarely unifoliate; branches and trunks often armed with spines or prickles; plants dioecious or polygamous; disc inconspicuous *Zanthoxylum*
 2. Leaves 1- to 3-foliate; unarmed; flowers perfect, racemose; disc commonly surrounding ovary *Pilocarpus*
1. Fruit a drupe, berry or hesperidium.
 3. Fruit a hesperidium; leaves unifoliate; carpels several-seeded.
 4. Ovary with 8 to 15 locules *Citrus*
 4. Ovary with 3 to 5 locules (kumquat) *Fortunella*
 3. Fruit a drupe or few-seeded berry.
 5. Fruit drupaceous, blue or black *Amyris*
 5. Fruit a berry, white, orange or red in color.
 6. Plants with paired spines, calyx 3-lobed, stamens 6, fruit red *Triphasia*
 6. Plants unarmed; calyx 5-parted; stamens 8 or 10.
 7. Leaflets 3 to 7, obovate, obtuse, 1-3.5 cm long; fruit ellipsoid-subglobose, ripening red *Murraya*
 7. Leaflets 1 to 3, lanceolate, long acuminate, 10-20 cm long; fruit subglobose, white to pink *Glycosmis*

CULTIVATED TAXA

Chloroxylon swietenia DC., the stainwood, was once cultivated in the botanic garden on Dominica (Hodge s.n.).

Clausena lansium (Lour.) Skeels, the wampi, was cited by Duss as "*Cookia punctata* Retz." and reported to be cultivated in the Saint Pierre botanical garden (Duss 1942, n.v.).

Esenbeckia pilocarpoides Kunth was reported by Wilson (1911, p. 202) to occur in Martinique. A specimen, Plée 652 (P), may be from a cultivated plant.

Fortunella japonica (Thunb.) Swingle, the round kumquat, and *Fortunella margarita* (Lour.) Swingle, the oblong kumquat, have been seen in gardens on several islands but are not represented by herbarium collections.

Glycosmis spp. have been reported from the Lesser Antilles in several publications starting with Grisebach's reference to *G. citrifolia*. The collection Duss 4062 made at Bains Jaunes in 1902 was distributed as *G. pentaphylla* (Retz.) DC. but annotated as *G. citrifolia* (Willd.) Lindley by Tanaka. Gooding et al. stated that *G. parviflora* (Sims) Little was naturalized on Barbados, and Fournet cited the same species as subsponaneous here and there in Guadeloupe, crediting Stehlé for a record from the trial gardens at Pointe-à-Pitre. Tanaka called this *G. mauritiana* (Lam.) Tanaka. Alexander Anderson reported in his Hortus that he acquired material of "*Limonia mauritiana* Lamarck" from Loddiges before 1790. A Guiding specimen (k) from St. Vincent is annotated *G. citrifolia* (Willd.) Lindley, and a sterile specimen from St. Vincent was collected by Morton (35089). Regrettably none of the specimens seen can be identified satisfactorily beyond the genus.

Limonia acidissima L. was introduced to Antigua in 1890 and one tree was alive in 1938 when collected by Box (1348).

Ravenia spectabilis (Lindley) Planchon was cultivated at La Josephina, Guadeloupe, (Duss 4047, n.v.).

Spathelia sorbifolia (L.) Fawcett & Rendle was tried on Barbados (Gooding) but has not persisted.

AMYRIS P. Browne

Amyris P. Browne, Civ. Nat. Hist. Jamaica 208. 1756.

Trees or shrubs. Leaves alternate or opposite, trifoliolate, pinnately compound or unifoliolate, thinly coriaceous, glabrous, pellucid-punctate. Inflorescence paniculate, terminal; flowers perfect, sepals and petals 3 to 5, calyx persistent, petals white, imbricate; stamens twice as many as petals, filaments free, filiform; ovary 1-celled, ovules 2, pendulous. Fruit 1-seeded drupe.

TYPE SPECIES: *Amyris balsamifera* L.

Amyris elemifera L., Syst. Nat. ed. 10, 2:1000. 1759.

FIGURE 212.

Type: Catesby 2: t. 33, f. 3.

Syn.: *Amyris maritima* Jacq., Enum. Syst. Pl. 19. 1760. (Type: Havana, not indicated.)

Amyris sylvatica Jacq., Select. Stirp. Amer. Hist. 107. 1763, nomen novum.

Shrub or small tree to 4 m. Leaves opposite, petioles to 3 cm, leaflets usually 3, occasionally 5, petiolules to 1 cm, lanceolate to broadly or rhombic-ovate, 3.5-5 x 2-4 cm, leathery, margin crenulate to entire, base cuneate to rounded or subtruncate, apex acute to long-acuminate. Inflorescence paniculate, terminal or lateral, to 7 cm; calyx lobes ovate, petals narrowly obovate, to 3.5 mm, ovary glabrous, oblong-ovoid. Drupe globose to obovoid, 5-8 mm long, black, glaucous.

GENERAL DISTRIBUTION: Bahamas, Greater Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Les Saintes!, Dominica!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Torchwood, bois chandelle, bois flambeau, bois pini.

CITRUS L.

Citrus L., Sp. Pl. 2: 782. 1753.

Trees; branches with single spines in axils of leaves. Petioles often winged, leaves unifoliate or articulation wanting. Flowers solitary or in short axillary racemes, perfect or many functionally staminate; calyx cupular, 4- or 5-lobed, petals 5, thick, glandular; stamens 15 to 40, filaments thick, white, annular disc present; ovary 10- to 14-locular, usually 4 or more ovules in each; style cylindric, stigma globose and capitate. Fruit a hesperidium, rind loose or tightly adherent, often brightly colored, carpels with large juice sacs, seeds several, the embryo often green.

TYPE SPECIES: *Citrus medica* L.

A genus of perhaps 12 species and an infinite number of selections variously listed as varieties, cultivars, subspecies or races. Many "species" hybridize and intergeneric hybrids are known. The genus was an early introduction into the West Indies.



FIGURE 212 (left). *Amyris elemifera*, x 0.33. FIGURE 213 (right). *Citrus sinensis*, x 0.33.

The lime was once one of the major agricultural crops of the islands of Dominica and Montserrat. Oranges are today occasional in local gardens, with the sour orange persisting after cultivation and occurring spontaneously in remote areas.

The forbidden fruit of Barbados, described first by Hughes in 1750 and named *Citrus paradisi* by Macfadyen, may be the earliest record of the grapefruit. It is now considered as a probable hybrid of *C. maxima*, the shaddock, and *C. sinensis*, the sweet orange. The combination *Citrus grandis* var. *racemosa* (Roemer) Stone has recently been proposed by Stone. Wild plants with fruit of a poor quality, known as the forbidden fruit, are said to occur in remote areas in St. Lucia.

Citrus myrtifolia Raf. may be the plant reported by Duss as "*C. myrtifolia* Riss. & Pav." then under cultivation in Guadeloupe and Martinique. The Duss collections 1941 and 3765 have not been seen. This taxon was recognized by Tanaka but is now regarded as a subtaxon of *C. aurantium*.

Herbarium specimens of the various *Citrus* plants are few and mostly inadequate for accurate identification or for a record of their occurrence in the Lesser Antilles.

KEY TO THE SPECIES

1. Leaves without articulation at apex of wingless petiole; plants with stout spines; petals pink-tinged; fruit oblong, 10-20 cm long, locules 10 to 13, peel rough tuberculate, thick, yellow, pulp acid. Citron *C. medica* L.
1. Leaves articulated at apex of petiole, petioles winged or margined.
 2. Petioles slightly margined; plants with stout stiff spines; flower buds tinted pink outside; fruit oval, with nipple, 5-10 cm, locules 8 to 10, peel adherent, thick, yellow; pulp sour. Lemon *C. limon* (L.) Burm. f. (*C. limonium* Risso)
 2. Petioles prominently margined; flower buds white or cream.
 3. Flowers small, to 2.5 cm dia., petiole wings oblanceolate 2-9 mm wide; plants with short stout spines; fruit oval or subglobose, 4-6 cm dia., locules 9 to 12, peel thin, greenish yellow, adherent, pulp green, acid, core solid. Lime *C. aurantifolia* (Christm. & Panzer) Swingle
 3. Flowers larger, over 2.5 cm dia., fruit commonly larger, oblate or globose, pulp mild, sweet or sour.
 4. Petioles broadly winged.
 5. Leaves subcordate at base, petiole wings 2-3 cm wide at apex, pubescent; axillary spines 2-3 mm long; fruit globose or pyriform, 10-30 cm dia., peel smooth, thick, often yellow, pulp pale yellow to pink, sweet, core solid. Pomelo or shaddock (*C. grandis* (L.) Osbeck) *C. maxima* (J. Burman) Merr.
 5. Leaves not subcordate at base, acute or rounded, glabrous below.
 6. Fruit 10-20 cm dia., globose or oblate, locules 10 to 12, peel thin, greenish or pale yellow, pulp mildly acid, core hollow; stems generally angled, spines to 5 mm, petiole wings 1-5 cm. Grapefruit *C. × paradisi* Macf.
 6. Fruit 4-6 cm dia., subglobose, locules 10 to 12, peel thick, rough, strongly aromatic, orange-red, pulp very sour, core hollow; stems not

- conspicuously angled, spines not developed, petiole wings 1-1.5 cm.
 Sour orange, Seville orange *C. aurantium* L.
4. Petioles narrowly winged.
7. Leaves rhombic to lanceolate 4-6 x 1-2 cm; fruit depressed globose, 5-8 cm dia., peel loose, thin, yellow- or orange-red; segments easily separated, pulp sweet. Mandarin, tangerine *C. reticulata* Blanco
7. Leaves elliptic to ovate 5-15 x 2-8 cm; fruit globose, to 10 cm dia., peel adherent, thick, orange or green, segments adherent, pulp juicy, sweet or acid. Sweet orange *C. sinensis* (L.) Osbeck FIGURE 213

MURRAYA L.

Murraya Koenig ex L., Mant. Pl. 2: 554. 1771, nom. cons.

Syn.: *Chalcas* L., Mant. Pl. 11, 68. 1767. (Type species: *Chalcas paniculata* L.)

Densely branched shrubs or small trees, unarmed. Leaves alternate, pinnate, glabrous. Inflorescences of axillary or terminal corymbs or panicles; flowers perfect, sepals distinct or united, petals free, white, imbricated; stamens 10, free, disc annular; ovary 2-5-celled, each locule with 1 or 2 pendulous ovules, style slender, stigma capitate. Fruit a berry with mucilaginous pulp and few seeds.

TYPE SPECIES: *Murraya exotica* L.

A genus of 12 species of eastern Asia and the Pacific islands. Original orthography of *Murraea* changed and so conserved.

Murraya exotica L., Mant. Pl. 2: 563. 1771.

FIGURE 215.

Type: not determined.

Syn.: *Chalcas paniculata* L., Mant. Pl. 68. 1767. (Type: unresolved.)

Murraya paniculata (L.) Jack, Malayan Misc. 1: 31. 1820.

Chalcas exotica (L.) Millsp., Publ. Field Colombian Mus., Bot. Ser. 1: 25. 1895.

Authors not (L.) Jack.

Shrub or small tree to 4 m, branches puberulent. Leaves 4-11 cm, leaflets 3 to 9, obovate, 2-3.5 x 1-2 cm, glabrous, margin entire, often glossy above, base cuneate, apex acute, ultimately emarginate. Inflorescence to 3.5 cm, petals white, 13-18 x 3-4 mm, stamens alternating long and short. Berry ovoid, 13 mm, seeds 1 or 2, villous, orange.

GENERAL DISTRIBUTION: Native of tropical Asia but widely cultivated in tropical areas.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, the Grenadines!.

NOTES: Although commonly seen as a cultivated plant, this taxon is now well established. The flowers are extremely aromatic. B. C. Stone (1985) has concluded that *M. exotica* represents "a distinct geographic entity, probably native

of China (and perhaps Taiwan)" but admitted he had not seen authentic wild collections. Although usually called *M. paniculata* (L.) Jack in current floras of the West Indies, Stone considered this a distinct species which can be found wild.



FIGURE 214 (left). *Triphasia trifolia*, x 0.35. FIGURE 215 (right). *Murraya exotica*, x 0.35.

PILOCARPUS Vahl

Pilocarpus Vahl, *Eclog. Amer.* **1**: 29. 1797.

Trees. Leaves alternate, subopposite or clustered near ends of branches, 1-, 2- or 3-foliate, petiolate and with petiolules. Inflorescence terminal, racemose, flowers long pedicellate, perfect, calyx lobes 4 or 5, petals 4 or 5, commonly inflexed, stamens 4 or 5 inserted below the fleshy annular disc, ovary depressed globose, immersed in the disc, 4- or 5-lobed and celled, style short, simple or divided, ovules 2 in each locule. Fruit of 1 to 5 nearly distinct carpels, tardily dehiscent above middle, usually concentrically ridged, seeds 1 per locule.

TYPE SPECIES: *Pilocarpus racemosus* Vahl.

A genus of perhaps 22 species of tropical America.

REFERENCE: R. C. Kastra, *Flora Neotropica Monographs* **33**: 1-198. 1982.

Pilocarpus racemosus Vahl, *Eclog. Amer.* **1**: 29. 1797.

FIGURE 216.

Type: Montserrat, *Ryan s.n.* (holotype, c).

Shrub or small tree to 5 m. Leaflets 1-5, lance-elliptic to oval or obovate, 3.5-17.5 x 2.0-9.5 cm, entire, pellucid-punctate, base cuneate or rounded, apex retuse. Racemes 1.5-3.5 dm, pedicels 7-13 mm, petals ovate or oblong-ovate, 3.5-4.0 mm long, acute. Follicles 8-11 mm long, dark brown or black, seeds 5.5-9 mm long, glabrous, black.

GENERAL DISTRIBUTION: Cuba, Hispaniola.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Martinique!.

COMMON NAMES: Flambeau caraïbe, flambeau noir, bois blanc.

TRIPHASIA Lour.

Triphasia Lour., Fl. Cochinch. 1: 159. 1790.

Evergreen shrubs, with paired axillary spines and others scattered. Leaves alternate, mostly 3-foliolate but occasionally with 2 or 1 leaflet. Inflorescence axillary, of a single flower or a few in cymes; calyx 3- or 4-lobed; petals 3 or 4 imbricate; stamens 6 or 8, disc fleshy; ovary obovate, with 3 or 4 locules, ovules



FIGURE 216 (left). *Pilocarpus racemosus*, x 0.35. FIGURE 217 (right). *Zanthoxylum punctatum*, x 0.35; a, pistillate branch; b, staminate branch.

1 in each narrowed to the style, stigma capitate. Fruit a fleshy berry, 1- to 3-seeded, conspicuously pellucid punctate.

TYPE SPECIES: *Triphasia aurantiola* Lour. = *T. trifolia* (Burm. f.) P. Wilson.

A genus of three species in Asia and the Philippines.

Triphasia trifolia (Burm. f.) P. Wilson, *Torreya* 9: 53. 1909. FIGURE 214.

Basionym: *Limonia trifolia* Burm. f., *Fl. Indica* 103, t. 35, f. 1. 1768.

Type: Java, *ibid.*

Shrub to 4 m, spines mostly paired, slender. Petioles to 1 cm, usually less, leaflets generally 3, short stalked, terminal rhombic 4.5 x 2.3 cm, laterals usually oval or oblong, 1.2 x 0.4-1 cm, leathery, pellucid, margins sinuate to entire, terminal leaflets broadly cuneate at base, obtuse or rounded and emarginate at apex, lateral leaflets cuneate to rounded at base, rounded and slightly emarginate at apex. Flowers axillary, solitary or cymose, pedicels short, petals white, linear-oblong, to 1.5 cm. Berry globular or oblongoid, 1.2 cm dia., red, with conspicuous glandular dots and pits.

GENERAL DISTRIBUTION: Native of the East Indies but widely cultivated.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Sweet lime, Chinese lemon, myrtle lime, citronella.

NOTE: This plant persists in hedgerows and around old foundations. It has become established in coastal areas and invades the edges of mangroves.

ZANTHOXYLUM L.

Zanthoxylum L., *Sp. Pl.* 1: 270. 1753.

Syn.: *Fagara* L., *Syst. Nat.* ed. 10, 2: 897, 1362. 1759. (Type species: *Fagara pterota* L.)

Shrubs or trees, deciduous or evergreen, dioecious; stems, branches, petioles and leaf rachises densely to sparsely armed with flattened prickles or unarmed. Leaves alternate, pinnate, trifoliolate or unifoliolate, pubescent or glabrous, rachises winged or unwinged, sometimes deeply grooved; leaflets few to many, opposite or alternate, crenate to entire, pellucid-punctate. Inflorescences axillary or borne below leaves, flowers single, umbellate or spicate or inflorescences terminal and cymose or paniculate; sepals 3 to 5, deciduous or persistent; petals 3 to 5, free; stamens 3 to 5, sometimes sterile or absent, filaments free, disc glabrous and glandular; pistils 1 to 5, sessile or stalked. Follicles sessile or stipitate, 2-valved, pellucid-punctate or verrucose-glandular; seeds subglobose, 1 per locule, black, shiny.

TYPE SPECIES: *Zanthoxylum americanum* Miller, *Gard. Dict.* ed. 8. 1768.

A genus of perhaps 300 species of temperate and tropical areas worldwide. Adams (1972) recognized the genus *Fagara* as representing the tropical species

with two perianth whorls. Waterman (Taxon **24**: 361-2. 1975) summarizes the evidence, chemical and morphological, for accepting the unity of the two genera.

KEY TO THE SPECIES

1. Inflorescences axillary or borne below leaves, flowers 1 to few on short peduncles; follicles 1 or 2.
 2. Leaf rachis winged, leaflets mostly linear-oblong, less than 2 cm long; branches commonly geniculate or zigzag and spiny; stamens 4 *Z. spinifex*
 2. Leaf rachis without wings; leaflets mostly broadly obovate, exceeding 2 cm; branches straight, rarely spiny (juvenile plants or adventitious shoots); stamens 3 *Z. punctatum*
1. Inflorescences terminal or terminating lateral branches, elongated cymes or panicles with many flowers.
 3. Leaves unifoliolate, glabrous; follicles 1 or 2, subsessile *Z. monophyllum*
 3. Leaves pinnate with 3 to many leaflets; glabrous or pubescent.
 4. Leaves stellate pubescent; follicles 1 or 2.
 5. Follicles sessile, prominently verrucose-glandular; leaflets 22 to 30, rachis strongly grooved and slightly margined *Z. microcarpum*
 5. Follicles stalked; not prominently punctate; leaflets 5 to 7, rachis terete *Z. flavum*
 4. Leaves simple pubescent or glabrous; follicles 5.
 6. Follicles stalked; leaflets 6 to 16, margin obtusely crenate or scalloped, glabrous, turning black on drying *Z. caribaeum*
 6. Follicles sessile; leaflets 11 to 20, margins minutely crenate-serrate or entire, slightly hispidulous with simple hairs, not blackening on drying *Z. martinicense*

Zanthoxylum caribaeum Lam., Encycl. **2**: 39. 1786.

Type: Barbados, lectotype selection needed.

Syn.: *Fagara caribaea* (Lam.) Krug & Urban in Urban, Bot. Jahrb. Syst. **21**: 562. 1896.

Zanthoxylum aromaticum sensu Duss, Fl. Phan. Antill. Franç. 140. 1897.

Shrub or small tree to 20 m, branches glabrous, variously armed with prickles. Leaflets 7 to 13, broadly ovate to elliptic-oblong, 4.5-12 x 2.5-5 cm, thin coriaceous, commonly turning black on drying, margin shallowly rounded crenate appearing scalloped, base cordate to subacute, apex rounded or commonly some short acuminate. Inflorescence terminal, 4-20 cm long; axes corky, tan, sepals 5, suborbicular, petals 5, elliptic, 4-5 mm, stamens 5, carpels 5. Follicles 4.5-8 mm long with stipes 1-3 mm; seeds 4-5 mm.

GENERAL DISTRIBUTION: Mexico, Puerto Rico, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Lépiné blanc, bois-chandelle blanc.

Zanthoxylum flavum Vahl, Eclog. Amer. **3**: 48. 1807.

Type: Montserrat, *Ryan* (holotype, c).

Syn.: *Fagara flava* (Vahl) Krug & Urban in Urban, Bot. Jahrb. Syst. **21**: 571. 1896.

Shrubs or trees to 12 m, all parts short and densely stellate pubescent, unarmed. Leaves to 25 cm, leaflets 5 to 7 (to 11), oblong, lanceolate or elliptic, 3-10 x 1.5-5.5 cm, crenate to entire, subcoriaceous, base subtruncate to acute, commonly inequilateral, apex rounded to acute, panicles terminal, sepals 5, triangular, petals 5, 2.5-3.8 mm, stamens 5, carpels 1 to 3. Follicles obovoid, 5-9 mm, stipe 1 mm, seeds obovoid, 4-5 mm, black, shiny.

GENERAL DISTRIBUTION: Bermuda, Florida, Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts, Barbuda!, Antigua!, Guadeloupe!, Marie Galante!.

COMMON NAMES: Yellow sandalwood, yellow sanders, Alexander, noyer, bois noyer.

Zanthoxylum martinicense (Lam.) DC., Prodr. 1: 726. 1824.

Basionym: *Fagara martinicense* Lam., Encycl. 1: 334. 1783; Suppl. 2: 624. 1812.

Type: Martinique, *Martin s.n.*

Syn.: *Zanthoxylum juglandifolium* Willd., Sp. Pl. 4: 756. 1806. (Type: Pluk., *Almagestum* t. 239, f. 6.)

Zanthoxylum album Vahl, Eclog. Amer. 3: 47. 1807. (Type: Montserrat, *Ryan.*)

Zanthoxylum lanceolatum Poiret in Lam., Encycl. Suppl. 2: 293. 1811. (Type: Puerto Rico, *Ledru.*)

Zanthoxylum clava-herculis Griseb., Fl. Brit. W. Indian Is. 138. 1860, not L.

Tree to 20 m, trunk with hard corky thorns, branches pubescent, armed with small prickles or unarmed. Leaves to 35 cm, leaflets 9 to 17, oblong, obovate, or elliptic, 3-13 x 1.5-4.5 cm, minutely pubescent or glabrate, membranaceous, margins crenulate or entire, base obliquely rounded, apex obtusely short-acuminate. Panicles terminal, to 6 cm, sepals 5, triangular, petals 5, 2-3 mm, stamens 5, carpels 5. Follicles 1.5 mm dia., sessile, seeds 3-4 mm, black, shiny.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Eustatius!, Guadeloupe!, Marie Galante!, Dominica!, St. Lucia!.

COMMON NAMES: Yellow prickle, yellow hercules, l'épineux, white prickle, lépiné jaune.

NOTE: Britton & Wilson (1924) reported this species to occur from "Montserrat to Trinidad" but it is not well represented by specimens from the Lesser Antilles.

Zanthoxylum microcarpum Griseb., Fl. Brit. W. Indian Is. 138. 1860.

Type: Dominica, *Imray* (holotype, K).

Syn.: *Fagara microcarpum* (Griseb.) Krug & Urban in Urban, Bot. Jahrb. Syst. 21: 570. 1896.

Tree to 15 m, trunk spiny, branches, petioles and rachises stellate pubescent, with few prickles or unarmed. Leaves to 28 cm, leaflets 11 to 20, oblong to oblong-lanceolate, 2.5-9 x 1-2.5 cm, membranaceous, sparsely pubescent below, margin minutely serrate, base rounded to acute, apex acute to acuminate. Pan-

icles terminal, to 15 cm, sepals 5, triangular, petals 5 ovate, 1.5-2 mm, stamens 5, carpels 2 or 3. Follicles 1 or 2, subglobose, 4-5 mm dia., with prominent verrucose glands; seeds orbicular, 2.5-3 mm, black, shiny.

GENERAL DISTRIBUTION: Mexico, Central America, Trinidad, Brazil.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Bois pini, l'épineux blanc, lépiné rouge.

Zanthoxylum monophyllum (Lam.) P. Wilson, Bull. Torrey Bot. Club **37**: 86. 1910.

Basionym: *Fagara monophyllum* Lam., Encycl. **1**: 334. 1783.

Type: Lectotype selection needed.

Syn.: *Zanthoxylum simplicifolium* Vahl, Eclog. Amer. **3**: 45. 1807. (Type: Montserrat, Ryan (holotype, c).)

Zanthoxylum ochroxylon DC., Prodr. **1**: 725. 1824, illeg. nom. nov.

Maytenus vincentinus Turcz., Bull. Soc. Imp. Naturalistes Moscou **36**: 100. 1863. (Type: St. Vincent, Caley s.n. (holotype, LE).)

Shrub or small tree to 10 m, branches unarmed or with round or flattened prickles. Leaves unifoliolate, leaflet oval to elliptic, 3-14 x 1.5-5.4 cm, semicoriaceous, glabrous, margin entire to subcrenate, lustrous, base rounded to acute, apex acute. Panicles terminal or terminal on lateral branches, to 5 cm, sepals 5, triangular, petals 5, ovate, 2.5 mm, stamens 5, carpels 2 or 3. Follicles globose, 3.5-4.5 mm, subsessile; seeds globose, 3-4 mm, black, shiny.

GENERAL DISTRIBUTION: Central America, Hispaniola, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Montserrat!, Guadeloupe!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, Barbados!.

COMMON NAMES: Yellow prickly, greater yellow hercules, lépiné, bois noyer.

Zanthoxylum punctatum Vahl in West, Bidr. St. Croix 310. 1793.

FIGURE 217.

Type: St. Croix, West s.n. (holotype, c).

Syn.: *Fagara trifoliata* Sw., Prodr. 33. 1788. (Type: Dominica, probably Masson, not *Z. trifoliatum* L.)

Zanthoxylum ternatum Sw., Fl. Ind. Occid. **1**: 570. 1797, nom. nov.

Tobinia punctata (Vahl) Griseb., Fl. Brit. W. Indian Is. 137. 1860.

Tobinia ternata (Sw.) Griseb., Fl. Brit. W. Indian Is. 136. 1860.

Shrub or tree to 8 m, sterile branches of juvenile plants or adventitious shoots densely covered with flattened black thorns, branches glabrous. Leaves to 7 cm, leaflets generally 3 but to 7, broadly obovate to elliptic-lanceolate, 2-8 x 1-4 cm, coriaceous, glabrous, commonly shiny, margin entire or minutely crenulate, base acute to cuneate, apex acute, rounded or emarginate. Panicles axillary or below leaves, to 0.5 cm, sepals 3, triangular-ovate, petals 3 elliptic, to 2.5 mm, stamens 3, carpels 2. Follicles 1 or 2, globose, 4.5 mm dia., seeds globose, to 3 mm, black, shiny.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Antigua!, Guadeloupe!, Marie Galante!, Les Saintes!, St. Lucia!, St. Vincent!, Barbados!.

COMMON NAMES: Ramgoat, l'épineux, prickle, lépiné rouge, bois-flambeau.

Zanthoxylum spinifex (Jacq.) DC., Prodr. 1: 728. 1824.

Basionym: *Fagara spinifex* Jacq., Fragm. Bot. 10, t. 6, f. 2. 1809.

Type: Venezuela, *ibid.*

Syn.: *Fagara microphylla* Desf., Tabl. École Bot. ed. 1: 200. 1804, nom. nudum.

Zanthoxylum microphyllum Desf., Tabl. École Bot. ed. 3: 256. 1829, nom. nudum.

Shrub or small tree to 5 m, armed with slender brown prickles, stems geniculate or zigzag. Leaves to 3 cm, rachis winged, leaflets 3 to 11, linear-oblong to elliptic, 0.3-1.5 x 0.1-0.5 cm, lustrous but drying black, entire, subsessile, margins entire or crenate, base cuneate to rounded, apex rounded or truncate. Flowers solitary or glomerate, axillary to the leaves or below them, sepals 4, triangular, petals 4, oval to elliptic, to 2 mm, stamens 4, carpels 2. Follicles 1 or 2, sessile or short stipitate, globose, to 3.5 mm dia.; seeds ovoid to subglobose 2.5-3 mm, black, shiny.

GENERAL DISTRIBUTION: Greater Antilles, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

COMMON NAMES: Ram goat, amparher.

EXCLUDED OR QUESTIONABLE RECORDS

Zanthoxylum aromaticum DC. (= *Zanthoxylum elephantiasis* Macf.) is attributed to Guadeloupe by Grisebach. No supporting specimens have been located.

Fagara lentiscifolia Willd. (= *Zanthoxylum fagara* (L.) Sarg.) is cited by Grisebach as occurring in St. Kitts and Nevis. No supporting specimens have been seen.

Tobinia spinosa (Sw.) Desf. (= *Zanthoxylum spinosum* (L.) Sw.) was attributed to Dominica by Grisebach and more recently by Adams. The *Imray* collection cited by Grisebach has not been seen and the identification is questioned.

Fagara tragodes Jacq. is attributed to Nevis by Hamilton and by Grisebach. *Zanthoxylum tragodes* (L.) DC. is considered endemic to Haiti. The Hamilton collection has not been seen.

SIMAROUBACEAE

SIMAROUBACEAE DC., Ann. Mus. Natl. Hist. Nat. 17: 422. 1811.

Shrubs or trees, usually with bitter bark, stipulate. Leaves alternate, simple or pinnately compound, leaflets alternate or opposite. Inflorescence axillary or terminal, of short clusters of flowers, racemose, panicle or broadly corymbose, flowers perfect, monoecious, dioecious or polygamodioecious;

calyx of 3-7 distinct sepals; corolla of 3-7 petals, imbricate; stamens 3-10, filaments glabrous or pubescent, sometimes with basal appendage, anthers ovoid to oblong, pistil 1 or several, free or adherent, united at apex or by style base, styles free and distinct above or short, stigmas terminal or linear and recurved, ovules 1 or 2 in each locule. Fruit drupaceous and 1-seeded or berrylike and 2- or 3-seeded.

TYPE GENUS: *Simarouba* Aublet, nom. cons.

REFERENCES: J. K. Small, N. Amer. Flora **25**(3): 227-239. 1911. A. Cronquist, Brittonia **5**: 129-147. 1944.

NOTES: Nooteboom (Blumea **11**: 509-528. 1962; Fl. Malesiana **1**, **6**: 193-226. 1962) proposed the inclusion of *Simaba* Aublet and *Simarouba* Aublet within the genus *Quassia* L. and transferred several Neotropical species. This is followed by Airy-Shaw (Willis, Dict. Fl. Pl. & Ferns 8th ed. 1973). This treatment has not been followed in other New World Floras recently and is not accepted here. Feuillet (Bull. Jard. Bot. État **53**: 510, 511. 1983) expressed disagreement with Nooteboom's proposal.

Suriana L. has been included in the Simaroubaceae or recognized as a monotypic family in existing floras of the Caribbean area. Our feeling is that the genus is related to the Simaroubaceae but differs in sufficient ways to merit recognition as a family.

KEY TO THE GENERA

1. Leaves simple, axillary branches partly or completely modified into terminal spines; mature carpels separate, drupaceous, red *Castela*
1. Leaves pinnately compound, plants without spines; fruit mostly black.
 2. Leaflets opposite; carpels free but joined by common style-base, separate in fruit, drupes globose.
 3. Petiole and rachis winged; inflorescence racemose; corolla red, petals to 2.5 cm *Quassia*
 3. Petiole and rachis not winged; inflorescence a broad corymb, petals 3-4 mm, yellow-green *Picrasma*
 2. Leaflets alternate; fruits elongate.
 4. Inflorescence paniculate, erect; stamens 10; fruit a drupe, 1-seeded *Simarouba*
 4. Inflorescence racemose, or occasionally branched, usually pendulous; stamens 3 or 5; fruit a berry, 2- or 3-loculed, each with 1 seed *Picramnia*

CULTIVATED TAXA

Simaba multiflora Juss. (as *Simaba orinocensis* Griseb., Fl. Brit. W. Indian Is. (not Kunth) 139. 1860) was reported from St. Vincent on the basis of a Guilding collection (K) ex Sandwith (Kew Bull. **1929**: 75. 1929). This was represented in Guilding's (1825) enumeration of Anderson's introductions as "*Quassia simarouba*." Anderson in his unpublished Hortus records the introduction of this plant to the St. Vincent Botanic Garden as young plants he obtained from the woods in Guiana in 1791. It has not persisted in cultivation in St. Vincent.

CASTELA Turpin

Castela Turpin, Ann. Mus. Natl. Hist. Nat. **7**: 78. 1806, nom. cons.

Much-branched shrubs or small trees with lateral branches and axillary buds modified into spines. Leaves alternate, simple. Plants dioecious. Flowers axillary, solitary or in few-flowered clusters; sepals 4, united below; petals 4, free, imbricate; stamens twice as many as petals, sessile, androphore and pistillode white pilose, stamens in pistillate flowers reduced and sterile; gynophore in pistillate flowers short, pistils 4, wanting in staminate flowers, styles united, short, stigmas linear, divergent, ovules solitary in each carpel. Fruit drupaceous, often compressed.

TYPE SPECIES: *Castela depressa* Turpin.

A genus of 15 species in tropical America.

REFERENCES: A. Cronquist, J. Arnold Arbor. **25**: 122-128. 1944. R. Moran and R. Felger, Trans. San Diego Soc. Nat. Hist. **15**(4): 33-40. 1968.

Castela erecta Turpin, Ann. Mus. Natl. Hist. Nat. **7**: 80, t. 5B. 1806.

FIGURE 218.

Type: Antigua, *Richard s.n.* (n.v.).

Syn.: *Castela nicholsonii* Hooker, Bot. Misc. **1**: 271. 1830. (Type: Hooker, Bot. Misc. **1**, t. 55.)

Castelaria nicholsonii (Hooker) Small, N. Amer. Flora **25**: 231. 1911.

Spiny, much-branched shrub to 2.5 m, parts velutinous. Petioles minute, blades oblong to elliptic or obovate, 0.6-1.5 x 0.3-1.0 cm, gray-green and glabrous above, densely tomentose below, margin strongly recurved, base acute to round, apex rounded, acute and/or mucronulate. Flowers clustered, staminate flowers subsessile, pistillate flowers on pedicels to 1 mm; sepals triangular-ovate to 0.5 mm; petals obovate, 2.5 mm long, red. Drupes 1-4, oblong, 6-10 mm, slightly compressed, persistent gynophore red, fleshy.

GENERAL DISTRIBUTION: St. Croix, Venezuela, Colombia.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Barbuda!, Antigua!.

COMMON NAMES: Cockspur, goat bush.

NOTE: Nearly all lateral branches are terminated in short sharp spines and the axillary buds are variously developed and/or modified into smaller spines. Flower buds are produced acropetalous of the spines.

PICRAMNIA Sw.

Picramnia Sw., Prodr. 27. 1788; Fl. Ind. Occid. **1**: 217. 1797, nom. cons.

Shrubs or small trees. Leaves alternate, pinnate; leaflets alternate. Plants dioecious, inflorescence terminal, racemes or infrequently branched near base, usually puberulent, flowers clustered; sepals 3-5, united at base; petals 3-5, free;



FIGURE 218 (upper left). *Castela erecta*, x 0.33. FIGURE 219 (upper right). *Picramnia pentandra*, x 0.33. FIGURE 220 (lower left). *Picrasma excelsa*, x 0.33. FIGURE 221 (lower right). *Simarouba amara*, x 0.33.

stamens 3-5, free; filaments glabrous, anthers globose, apically dehiscent, reduced to staminodes in pistillate flowers; gynophore short, pistil of 2 or 3 united carpels, styles short, stigmas spreading, pistil rudimentary or wanting in staminate flowers, ovules 2 per locule. Fruit 2- or 3-celled berry, each locule 1-seeded.

TYPE SPECIES: *Picramnia antidesma* Sw.

A genus of 50 species of tropical America. The genus is under study at the present time and needs this revision. It is most frequently represented in herbaria by staminate or fruiting specimens.

Picramnia pentandra Sw., Fl. Ind. Occid. 1: 220. 1797.

FIGURE 219.

Type: Montserrat, *Ryan* (n.v.).

Shrub or small tree to 5 m; leaves 10-30 cm, leaflets mostly 7, petiolules 3-5 mm, elliptic-oblong to oval, lanceolate or ovate, 2-12 x 3-5 cm, slightly asymmetric, slightly pubescent on midrib below, drying shiny, base asymmetric, obtuse to cuneate, apex acute to acuminate. Racemes 15-20 cm, staminate flowers several in each cluster, subsessile, pistillate flowers few in each cluster on pedicels to 4 mm, sepals 5, ovate or triangular, 1-1.5 mm, strigose, persistent in fruit; petals oblong to lance-oblong 3 mm in staminate flowers, 1-1.2 mm in pistillate flowers; stamens 5, filaments glabrous, wanting in pistillate flowers; pistil oblong, glabrous, 2- or 3-loculed, each locule with 2 ovules, style short, stigmas linear, recurved. Fruit a berry, oblong to obovoid, 9-15 mm long, usually 2-celled, each locule 1-seeded, scarlet to dark red.

GENERAL DISTRIBUTION: Greater Antilles, northern South America.

DISTRIBUTION IN LESSER ANTILLES: St. Martin, Antigua!, St. Barts, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

COMMON NAMES: Gohallow, bois-poison, bois moudonge, bois-madame.

NOTE: No pistillate flowering specimens of this species have been seen. Within the fruiting specimens there is considerable variation in fruit size and shape which is not understood and seems not to be correlated with other characters.

PICRASMA Blume

Picrasma Blume, Bijdr. 247. 1825.

Syn.: *Aeschrion* Vell. Conc., Fl. Flumin. 58. 1829. (Type species: *Aeschrion crenata* Vell. Conc.)

Trees. Leaves alternate, pinnate, leaflets opposite. Inflorescence axillary, a broad corymb; plants dioecious; sepals 4 or 5, distinct; petals 4 or 5, free, valvate, persistent in fruit; stamens 4 or 5, reduced in pistillate flowers; carpels 2-5, distinct, styles united, stigmas linear, divergent, pistil absent in staminate flowers. Fruit drupaceous, 1-3 carpels developed.

TYPE SPECIES: *Picrasma javanica* Blume.

A genus of 6 species in tropical America and an equal number in Asia and Polynesia.

Picrasma excelsa (Sw.) Planchon, London J. Bot. **5**: 574. 1846. FIGURE 220.

Basionym: *Quassia excelsa* Sw., Prodr. 67. 1788.

Type: Jamaica, Swartz, n.v.

Syn.: *Simarouba excelsa* (Sw.) DC., Ann. Mus. Natl. Hist. Nat. **17**: 424. 1811.

Picraena excelsa (Sw.) Lindley, Fl. Med. 208. 1838.

Rhus antillana Eggers, Bull. U. S. Natl. Mus. **13**: 41. 1879. (Type: St. Thomas, Eggers s.n.)

Picrasma antillana (Eggers) Urban, Symb. Antill. **5**: 378. 1908.

Aeschron antillana (Eggers) Small, N. Amer. Flora **25**(3): 233. 1911.

Picraena antillana (Eggers) Fawcett & Rendle, Fl. Jamaica **4**: 201. 1920.

Tree to 9 m. Leaves 20-40 cm long, leaflets 7-13, oblong, elliptic or ovate-oblong, 6-18 x 2-6 cm, glabrous, margin entire or undulate, base asymmetric, cuneate to rounded, apex acute or short acuminate. Inflorescence to 11 cm long and broad, rachis crispous pubescent; sepals ovate, 1 mm in staminate flowers; petals lanceolate to oblong, 3-4 mm in staminate flowers, filaments pilose at base; pistillate flowers not seen. Fruiting gynophore 2.5 mm long and thick, drupes spheroidal, 5-10 mm dia., black.

GENERAL DISTRIBUTION: Jamaica, Hispaniola, Puerto Rico, Virgin Islands, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados!.

COMMON NAMES: Bitter tree, bitter ash, raw dog, peste à poux, bois-noyer, bois amér.

NOTE: Urban's recognition of a Lesser Antillean element he described as *Picrasma antillana* (Eggers) Urban cannot be maintained on the characters given.

QUASSIA L.

Quassia L., Sp. Pl. ed. 2, **1**: 553. 1762; **2**: 1679. 1763.

Shrubs or small trees. Leaves alternate, pinnately compound, rachis inconspicuously winged, leaflets 3-7, opposite, entire. Inflorescence racemose or branched at base, pedicels jointed; flowers perfect; sepals 5, distinct; petals 5, free, glabrous or slightly pubescent at base adaxially; stamens 10, filaments slender, with pubescent appendage near base; pistils 5, weakly united, on short gynophore, styles 1, stigma capitate. Fruit of several distinct drupes.

TYPE SPECIES: *Quassia amara* L.

A genus of 40 species mostly tropical American.

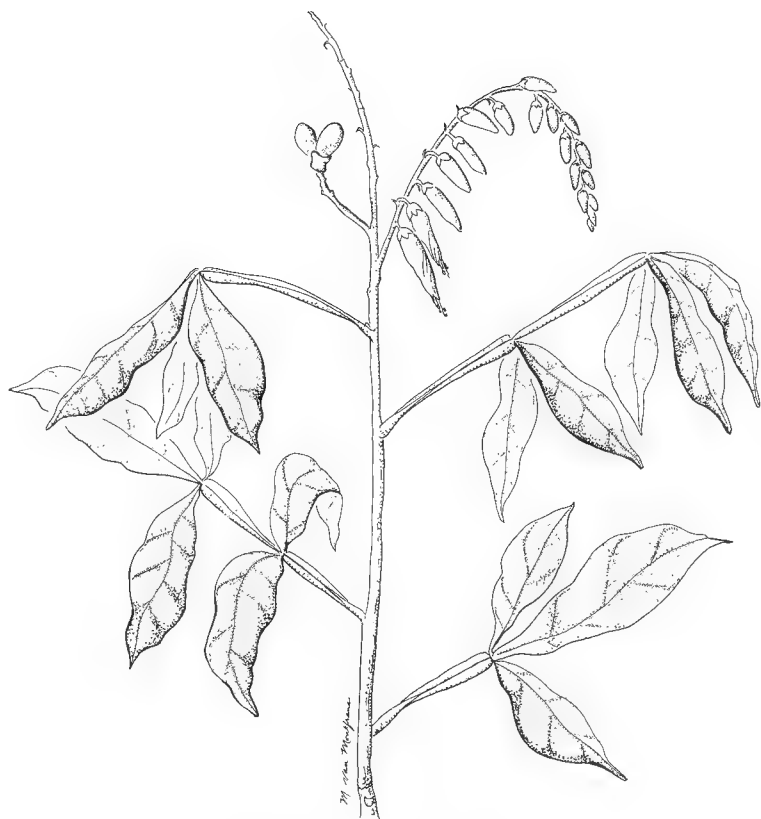


FIGURE 222. *Quassia amara*, x 0.5.

***Quassia amara* L., Sp. Pl. ed. 2, 2: 1679. 1763; Blom, Lignum Quassiae, 1763.**

FIGURE 222.

Type: Surinam, *Dahlberg*, but not clarified by recent workers.

Syn.: *Quassia officinalis* Rich., Actes Soc. Hist. Nat. Paris 1: 108. 1792. (Type: Cayenne, *Leblond*.)

Shrub or small tree to 7 m. Leaves to 25 cm long, rachis winged, expanding to leaflets, leaflets elliptic to obovate, 6-17 x 2-6 cm, entire, glabrous, base cuneate or tapering, apex abruptly acuminate. Inflorescence 25 cm, sepals triangular, 2 mm, glabrous or ciliolate-margined; petals red, lance-oblong, 2.5-3 cm., stamens exserted to 3.5 cm. Fruit ovoid or ellipsoid, 1-1.5 cm, constricted near base, black.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Vincent!.

COMMON NAMES: Quinine, quassia, quinine du pays.

NOTE: Cultivated as an ornamental or medicinal plant and persisting or apparently escaping. Introduced to St. Vincent from the Essequibo River in 1786 by Alexander Anderson.

SIMAROUBA Aublet

Simarouba Aublet, Hist. Pl. Guiane 2: 859. 1775, nom. cons.

Trees. Leaflets pinnate, leaflets alternate, to 21. Inflorescence paniculate, axillary; plants dioecious, staminate flowers in clusters of many flowers per node, pistillate flowers 1 or few per node; sepals 5, united at base; petals 5, distinct, imbricate; stamens 10, filaments with appendage near base in staminate flowers, abortive or absent in pistillate flowers; carpels 5 on short broad gynophore, absent in staminate flowers, ovules 1 per locule. Fruit ellipsoid, drupaceous.

TYPE SPECIES: *Simarouba amara* Aublet.

A genus of 6 species in Neotropical areas.

REFERENCE: A. Cronquist, Bull. Torrey Bot. Club 71: 226-234. 1944.

Simarouba amara Aublet, Hist. Pl. Guiane 2: 860, t. 331, 332. 1775.

FIGURE 221.

Type: French Guiana, Aublet (specimen not located).

Syn.: *Quassia simarouba* L.f., Suppl. Pl. 234. 1782. Superfluous.

Tree to 30 m. Leaves 30-50 cm, leaflets 8-15, petiolules to 1 cm, blades elliptic-oblong, 3-13 x 2.5-4 cm, lower smaller, glabrous, entire, base cuneate, apex rounded and mucronate. Inflorescence erect, to 40 cm, flowers clustered, calyx lobes triangular, 1 mm, puberulent or glabrous; petals ovate-lanceolate, 3-4.5 x 1.5-2 mm, greenish-yellow; stamens 10, appendages near base of filaments densely pubescent, stamens wanting in pistillate flowers; pistils glabrous, styles fused, stigmas linear, recurved. Fruit ellipsoid, 1-5 developed, 1-1.5 x 1 cm on enlarged receptacle.

GENERAL DISTRIBUTION: Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Bois blanc, boardwood, maruba, acajou blanc.

SURIANACEAE

SURIANACEAE Arn. in Wight & Arn., Prodr. 360. 1834.

Shrubs. Estipulate. Leaves alternate, simple, entire. Flowers perfect, in few-flowered axillary cymes, bracts large; calyx 5-lobed, connate at base,

imbricate, persistent in fruit; petals 5, clawed, imbricate; stamens in 2 whorls of 5, inner shorter or aborted, filaments filiform or subulate, pilose below; disc inconspicuous, pistils 5, free, pilose, style gynobasic, stigma small, capitate, ovules 2 in each locule. Fruit 3-5 free 1-seeded drupes.

TYPE GENUS: *Suriana* L.

NOTE: By some workers included in the Simaroubaceae but by others considered a monotypic family. Cronquist (Integrated system of classification of flowering plants, 1981) has enlarged the family to include an additional 3 genera of Australia.

SURIANA L.

Suriana L., Sp. Pl. 1: 284. 1753.

Characters of the family.

TYPE SPECIES: *Suriana maritima* L.

A monotypic genus characteristically of strand areas.

Suriana maritima L., Sp. Pl. 1: 284. 1753.

FIGURE 223.

Syntype: Sloane or Plumier, lectotype not selected.

Compact shrub of coastal areas, branches ascending to 1.5 m, densely pubescent. Leaves clustered at ends of branches, sessile, blades narrowly obovate, 1-2.8 x 0.3-0.5 cm, slightly fleshy, entire, base narrowed, apex acute to rounded. Cymes axillary, shorter than leaves and often hidden among them, pedicels 3-8 mm; sepals ovate, 8-10 mm, pubescent; petals obovate 5.5-6.5 x 4 mm, yellow, apex denticulate. Drupes globose, 3-4 mm dia., pubescent.

GENERAL DISTRIBUTION: Florida, Central America, Bahamas, Greater Antilles, northern South America, Madagascar, Polynesia, New Guinea, Australia.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Barbuda!, Antigua!, Montserrat!, Guadeloupe!, La Désirade!, Martinique!, the Grenadines!, Grenada!.

COMMON NAMES: Oseille bord de mer, romarin noir.

BURSERACEAE

BURSERACEAE Kunth, Ann. Sci. Nat. (Paris) 2: 346. 1824.

Trees with resinous bark and often aromatic leaves. Estipulate; leaves imparipinnate, alternate, deciduous or persistent. Inflorescence axillary or terminal, panicate or flowers reduced to a few, polygamo-dioecious or perfect; calyx small, truncate or lobed; petals 3, 4 or 5, free, or united into a short basal tube, valvate or imbricate; disc annular or lobed, stamens 6, 8 or 10; ovary 1-5-celled, style distinct or wanting, stigma 3- to 5-lobed. Fruit drupaceous, of 1, 2 or 3 pyrenes or the epicarp leathery and separating leaving a single bony triangular pyrene.



FIGURE 223. *Suriana maritima*, x 0.7.

TYPE GENUS: *Bursera* Jacq. ex L.

A tropical family of 20 genera and 600 species.

REFERENCE: Rose, N. Amer. Flora **25**(3): 241-261. 1911.

KEY TO THE GENERA

1. Bark papery, peeling; leaves deciduous; petals imbricate; drupe epicarp leathery, breaking free leaving a white, bony, triangular pyrene *Bursera*
1. Bark thick, sometimes roughened, not peeling; leaves persistent; petals valvate; drupe epicarp not separating, pyrenes 1-4.
 2. Petals united into short tube; petals 4 or 5; pyrenes 2 or 3 *Tetragastris*
 2. Petals free; petals 3 (4 or 5); pyrenes 1 (or 2).
 3. Leaflets coriaceous, acute to rounded at base, veins ascending; calyx truncate; petals 3, elliptical, glabrous; drupe 1-celled, rounded at apex *Dacryodes*
 3. Leaflets thin, leathery, apex acuminate, veins at right angles to midrib; calyx lobes ovate to triangular; petals 4 or 5, ovate-lanceolate, tomentose on margins; fruit sharp-pointed, with 1 or 2 pyrenes *Protium*

BURSERIA L.

Bursera Jacq. ex L., Sp. Pl. ed. 2, **1**: 471. 1762, nom. cons.

Syn.: *Elaphrium* Jacq., Enum. Syst. Pl. 3. 1760. (Type Species: *Elaphrium tomentosum* Jacq.)

Trees, commonly with peeling bark. Leaves deciduous, alternate, imparipinnate, aromatic resinoid when crushed. Inflorescences axillary, paniculate or reduced to few flowers; flowers polygamo-dioecious, calyx 4- or 5-lobed; petals 4 or 5, imbricate, free, ovate to oblong; stamens 8 to 10; disc annular; ovary ovoid, 3-angled, 3-celled. Fruit drupaceous but epicarp leathery, separating, deciduous, leaving white, bony, triangular 1-seeded endocarp.

TYPE SPECIES: *Pistacia simaruba* L. = *Bursera simaruba* (L.) Sarg.

A genus of perhaps 80 species of tropical America.

Bursera simaruba (L.) Sarg., Gard. & Forest **3**: 260. 1890.

FIGURE 225.

Basionym: *Pistacia simaruba* L., Sp. Pl. **2**: 1026. 1753.

Type: Jamaica, Sloane, t. 199, typotype Herb. Sloane **6**: 104, 105 (BM).

Syn.: *Terebinthus brownei* Jacq., Enum. Syst. Pl. 18. 1760, nom. illeg.

Bursera gummiifera L., Sp. Pl. ed. 2, **1**: 471. 1762, nom. superfl.

Elaphrium simaruba (L.) Rose, N. Amer. Flora **25**: 246. 1911.

Tree to 15 m, bark peeling in thin red-brown papery layers. Leaflets 7 to 9, ovate, oblong, elliptic or obovate, 4-7 x 2.5-4 cm, slightly asymmetrical, margin entire, base oblique, rounded or obtuse, apex acuminate. Inflorescence axillary to 10 cm; staminate flowers 5-parted; pistillate flowers 3-parted; calyx lobes triangular 1 mm, petals 2.5-3 mm, white; disc shallowly lobed; pistil ovary lobed, glabrous. Drupe ovoid to sharply triangular, 1-1.5 cm long, epicarp dark red, nutlet sharply triangular, white, bony.



FIGURE 224 (upper left). *Protium attenuatum*, x 0.35. FIGURE 225 (upper right). *Bursera simaruba*, x 0.35. FIGURE 226 (lower left). *Tetragastris balsamifera*, x 0.35. FIGURE 227 (lower right). *Dacryodes excelsa*, x 0.35.

GENERAL DISTRIBUTION: Florida, Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: West Indian birch, turpentine tree, birch, naked Indian, gommier, gommier rouge, gommier maduit, gommier barrière.

DACRYODES Vahl

Dacryodes Vahl, Skr. Naturhist.-Selsk. 6: 117. 1810.

Large trees, bark thick, resinous exuding a gum oxidizing white or gray. Leaflets coriaceous, persistent, pinnate. Inflorescence axillary, paniculate; flowers polygamous; calyx cup-shaped, subtruncate; petals 3, free, valvate, thick; stamens 6; disc annular, thick; ovary 3-celled, style short. Fruit oblong, 1-celled, 1-seeded.

TYPE SPECIES: *Dacryodes excelsa* Vahl.

A genus of 30 species of the American tropics.

REFERENCE: J. Cuatrecasas, Trop. Woods 106: 46-65. 1957.

Dacryodes excelsa Vahl, Skr. Naturhist.-Selsk. 6: 117. 1810. FIGURE 227.

Type: Puerto Rico, West (C).

Syn.: *Amyris hexandra* Ham., Prodr. Pl. Ind. Occid. 34. 1825. (Type: not located.)

Dacryodes hexandra (Ham.) Griseb., Fl. Brit. W. Indian Is. 174. 1860.

Tree to 35 m, bark gray. Leaflets 5 to 7, oblong, asymmetric to elliptic, 6-16 x 3-8 cm, coriaceous, entire, base cuneate, apex acute to rounded. Panicles axillary to 15 cm; calyx truncate 1 mm, petals elliptic 2-3 mm, yellow, spreading. Fruit oblong, 1.5-2.5 cm long, 1-1.5 cm in diameter, yellowish; slightly flattened on one side or compressed.

GENERAL DISTRIBUTION: Puerto Rico and Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, Marie Galante!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!.

COMMON NAMES: Gum elemi, gommier, gommier blanc, mountain gommier, bois gommier, bois-cochon, gommier à canots.

PROTIUM Burman f.

Protium Burman f., Fl. Indica 88. 1768, nom. cons.

Syn.: *Icica* Aublet, Hist. Pl. Guiane 1: 337. 1775. (Type species: *Icica heptaphylla* Aublet.)

Trees. Leaves imparipinnate, entire, persistent. Inflorescence axillary, paniculate, flowers polygamous, calyx with 4 or 5 ovate or acute lobes, petals 4 or 5, free, valvate; stamens 8 or 10, disc annular, crenate or cup-shaped; ovary 4- or 5-celled, style evident, stigma 4- or 5-lobed. Drupe globular or ovoid, often apiculate with persistent style, pyrenes 1 to 5, each 1-celled, 1-seeded.

TYPE SPECIES: *Protium javanicum* Burm. f.

A genus of 90 species mostly of Africa and Asia but also tropical America.

REFERENCE: J. J. Swart, Recueil Trav. Bot. Néerl. **39**: 211-446. 1942.

Protium attenuatum (Rose) Urban, Symb. Antill. **7**: 240. 1912. FIGURE 224.

Basionym: *Icica attenuata* Rose, N. Amer. Fl. **25**: 261. 1911.

Type: Guadeloupe, *Duss 3273* (Lectotype, *US 846786*).

Syn.: *Icica heptaphylla* Griseb., Fl. Brit. W. Indian Is. 173. 1860 in part, not Aublet.

Tree to 30 m, bark thick, smooth, resinous. Leaflets leathery, 5 to 9, ovate-lanceolate to elliptic-oblong, 7-16 x 3-6 cm, usually slightly asymmetrical, primary veins at right angles to midrib to near margin, upper pulvinus well developed, margin entire, base oblique, cuneate to rounded, apex acuminate, glabrous. Panicles 3-5 cm, branching from base; calyx lobes triangular; petals 5, valvate, ovate-lanceolate, 2.8-3 mm, yellow-green, margin tomentose; stamens 10, ovary glabrous, style short. Fruit orange, of 1, 2 or 3 carpels, broadly ovate, 2.2-3.2 cm long, tapered at apex, commonly curved and asymmetrical.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: L'incense, gommier, bois-l'encens, l'encens, gommier-blanc.

NOTE: Both Grisebach and Swartz cite Guilding specimens from St. Vincent. This, as *Protium heptaphyllum* (Aublet) Marchand var. *angustilobium* Engl. was presumably collected in the St. Vincent Botanical Garden from a plant originally introduced by Alexander Anderson from Pointe Galère, Trinidad, or the Guianas in 1791. One sheet (κ) bears the unpublished manuscript name of "vincentinum" as annotated by Domin.

TETRAGASTRIS Gaertner

Tetragastris Gaertner, Fruct. Sem. Pl. **2**: 130. 1790.

Syn.: *Caproxylon* Tussac, Fl. Antill. **4**: 87. 1827. Type species: *Hedwigia balsamifera* Sw.

Hedwigia Sw., Prodr. 4. 1788 (not P. Beauv. 1804, nom. cons.).

Trees with whitish bark. Leaves pinnate, leaflets lanceolate. Inflorescence axillary, paniculate; calyx 4- or 5-toothed; petals 4 or 5, valvate, united below in

short tube; stamens 10; ovary partly included in a disc, 4- or 5-loculed, style wanting. Fruit drupaceous, globose, 2- to 4-celled and lobed.

TYPE SPECIES: *Tetragastris ossea* Gaertner = *Tetragastris balsamifera* (Sw.) Oken.

A neotropical genus of 10 species.

***Tetragastris balsamifera* (Sw.) Oken, Allg. Naturgesch. 3(3): 1764. 1841.**

FIGURE 226.

Basionym: *Hedwigia balsamifera* Sw., Prodr. 62. 1788.

Type: Hispaniola.

Syn.: *Tetragastris ossea* Gaertner, Fruct. Sem. Pl. 2: 130. 1790. (Type: l.c. t. 109.)

Caproxylon hedwigii Tussac, Fl. Antill. 4: 87, t. 30. 1827, n.v.

Tree to 20 m. Leaflets 3 to 9, lanceolate, 7-12 x 2.5-5, margin entire, veins slightly ascending, base cuneate to rounded, often asymmetrical, apex acuminate. Inflorescence axillary or terminal, nearly equaling leaves, puberulent; calyx 2 mm, petals 3.5 mm, united for 1 mm, puberulent; ovary glabrous. Drupes 2.5 x 4-6 cm, glabrous, strongly 2-lobed.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe.

COMMON NAME: Gommier.

NOTES: Reported from Guadeloupe by Rose (1911), Stehlé (1948) and Fournet (1978) (the latter two give the location of Bains Jaunes). No material has been seen and the plant has not been relocated in this well-collected area.

MELIACEAE

MELIACEAE A. L. Juss., Gen. Pl. 263. 1789.

Trees or shrubs. Estipulate. Leaves alternate, usually pinnate, sometimes pellucid-punctate or lined. Inflorescences axillary, rarely cauliflorous, paniculate with cymose branches; flowers perfect and staminate or a pistillate flower distinct; sepals 4 or 5, imbricate; petals 5, free, imbricate, sometimes adnate to staminal tube and valvate; stamens 5 to 8 or 10, filaments united in tube which is dentate or lacerate, anthers sessile or stalked, included or exerted; disk present, annular or pulvinate; ovary free, 3-5-celled, obtuse or shortly narrowed to style, stigma discoid or pyramidal; ovules 1 or 2 to several in each locule. Fruit a dehiscent capsule or drupe; seeds sometimes winged.

TYPE GENUS: *Melia* L.

A family of 50 genera and about 1400 species in tropical areas.

REFERENCE: T. D. Pennington, Flora Neotropica Monograph 28: 1-470. 1981.

KEY TO THE GENERA

1. Leaves bipinnate or tripinnate, leaflets serrate; petals imbricate, mauve; staminal tube dark purple; fruit a drupe *Melia*
1. Leaves pinnate.
 2. Fruit a drupe; leaflets serrate-dentate, about 8 pairs with small terminal leaflet; flowers creamy-white *Azadirachta*
 2. Fruit a capsule; leaflets entire.
 3. Seeds winged, numerous, capsule woody.
 4. Stamens 10, fused into 10-toothed tube; petals contorted, free; leaflets without domatia; capsule opening from base, seeds winged above *Swietenia*
 4. Stamens 5, filaments free above gynophore; petals imbricate; leaflets usually with domatia in axils of veins; capsule opening from above, seeds winged below *Cedrela*
 3. Seeds not winged, with arillodes, ovules few, capsule leathery; petals imbricate or valvate.
 5. Ovules 3 or more, seeds large, angular, with woody sarcotesta *Carapa*
 5. Ovules 1 or 2; seeds without woody sarcotesta.
 6. Leaves imparipinnate, digitate or unifoliate; inflorescence paniculate; capsule 2- or 3-valved *Trichilia*
 6. Leaves lacking terminal leaflet or this replaced with undeveloped bud; inflorescence subracemose, simple or sparingly branched; capsule 4-valved *Guarea*

CULTIVATED TAXA

Sandoricum koetjape (Burm.) Merr. as *S. indicum* Cav. was once cultivated at the Dominica Botanic Garden.

Khaya senegalensis (Desr.) Adr. Juss. Fournet reported this tree was planted on Marie Galante by the Forestry Department.

AZADIRACHTA Adr. Juss.

Azadirachta Adr. Juss., Mém. Mus. Hist. Nat. **19**: 220. 1830.

Trees. Leaves simply pinnate. Inflorescence axillary panicle of many flowers, flowers perfect or staminate; calyx 5-lobed, sepals imbricate; petals 5, free, imbricate; staminal tube to 0.5 mm, terminated by appendages, anthers 10, inserted at base and opposite tube appendages; ovary 3-locular, style slender, stigma 3-lobed. Fruit a drupe, endocarp thin, 1 seeded.

TYPE SPECIES: *Melia azadirachta* L. = *Azadirachta indica* Adr. Juss.

Two species native to Indo-Malayan region. Introduced and cultivated but widely established.

Azadirachta indica Adr. Juss., Mém. Mus. Hist. Nat. **19**: 220, t. 2, f. 5. 1830.

FIGURE 230.

Syn.: *Melia azadirachta* L., Sp. Pl. **1**: 385. 1753.

Lectotype: Herb. Hermann **2**: 56 (BM).

Tree to 20 m. Leaves to 25 cm, leaflets 6-8 pairs plus terminal leaflet, ovate-lanceolate, 5-9 x 2-2.5 cm, strongly inequilateral, margin sharply dentate, base cuneate or concave on one side, obtuse or rounded on other, apex acuminate. Inflorescences terminal or axillary, to 45 cm, cymose, short-pedicellate, calyx minute, lobes to 0.5 mm; petals obovate, 4 mm, white, spreading; staminal tube to 4 mm, yellowish. Fruit oblongoid, to 3 x 1.5-2 cm, yellow-green.

GENERAL DISTRIBUTION: Native of Indo-Malaya but widely introduced and cultivated.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, Antigua!, St. Kitts!, Montserrat!, Guadeloupe.

COMMON NAMES: Nim, nime, neem.

CARAPA Aublet

Carapa Aublet, Hist. Pl. Guiane Suppl. 32, t. 387. 1775.

Trees. Leaves paripinnate with dormant glandular bud at apex; leaflets 6-10 pairs, entire, glabrous. Inflorescences axillary or subterminal many-flowered thyrses; calyx 4-5-lobed to base, imbricate; petals 4 or 5, imbricate, free; staminal tube divided at apex bifid or crenulate, anthers sessile, alternating with lobes; ovary partially sunken in nectary, 4- or 5-locular, 3-8 ovules in each locule. Fruit large pendulous usually subglobose septifragal capsule opening by 4 or 5 valves from apex and base simultaneously, valves leathery on drying; seeds 8-35, large, angular, sarcotesta woody.

TYPE SPECIES: *Carapa guianensis* Aublet.

A genus of 2 variable species in Africa and tropical America.

Carapa guianensis Aublet, Hist. Pl. Guiane Suppl. 32, t. 387. 1775.

FIGURE 228.

Type: French Guiana, *Aublet s.n.* (BM).

Tree to 30 m, glabrous. Leaves 30-50 cm long, leaflets 4-7 pairs, oblong to elliptic-oblong, 10-25 x 4-8 cm, coriaceous, entire, base rounded and slightly oblique, apex acute. Panicles to 50 cm; sepals minute; petals 4, obovate-elliptic, 5 mm long; staminal tube cupshaped, 3 mm; ovary 4-celled, style 1 mm. Fruit 4-angled, 7-10 cm dia., seeds about 12.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Mexico, Central America, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Marie Galante, Dominica!, Martinique!, St. Lucia, St. Vincent!, Grenada!.

COMMON NAMES: Wild cashew, acajon, crappo, carapate, bois rouge, crab wood.

NOTES: This species has not been collected in fruit in the Lesser Antilles.



FIGURE 228. *Carapa guianensis*, x 0.45.

Carapa procera DC., Prodr. 1: 626. 1824.

The second species of the genus was based on a Forsyth collection in "Herb. l'Her." Pennington (1981) questioned whether the material might not have come from West Africa and not the Caribbean. He stated, "The isotype specimen of *C. procera* seen by me poses problems because the label attached states '*Trichilia procera* M. Forsyth, Antilles.' Likewise, the protologue of de Candolle mentioned 'Ins. Caribaeis.' Noamesi (1958) presents cogent evidence to the effect that this is almost certainly not the correct label, and indeed de Jussieu (1830) also felt that there was some mistake."

Noamesi's unpublished thesis is not available to me but his conclusions are referred to by Iltis (Brittonia 12: 292-294. 1960) in a discussion of the "Old World cleomes adventive in the New World," in particular *Cleome rutidosperma* DC. where he found a comparable problem of "labels" associated with collections in the Candolle herbarium. Iltis concluded, "The holotypes of *Cleome rutidosperma* DC. and *Carapa procera* DC. (Meliaceae), originally cited as coming from the Antilles, were apparently collections of H. Smeathman from Sierra Leone, West Africa." Iltis reported Noamesi's conclusion: "There were also reports of *C. procera* DC., the most common African species, occurring in the New World; the type-locality, in fact, was given as 'Antilles'. A careful morphological study, however, revealed that the Surinam plants labeled *C. procera* belonged to a related though distinct species, for which the name *C. surinamensis* Miq. was available, and that here, too, the case for trans-Atlantic distribution was based on faulty observation." Pennington stated "I am in no doubt about placing *C. surinamensis* Miq. in the synonymy of the African *C. procera* as has also been suggested by several previous workers, thus providing another interesting example of a plant species with distributions in both the Old and New Worlds." As to "faulty observations" Pennington stated, "The characters used by Noamesi to keep these two taxa apart show too much overlap in their variation patterns or are too variable to be useful discriminators. . . . The floral characters used by the above author to separate them are due entirely to sex differences, he having failed to notice that all species of *Carapa* are monoecious with male and female flowers in the same inflorescence."

As to the origin of the specimens in herb. DC., they were probably collected by Alexander Anderson during his 1791 trip to the Guianas and possibly grown in the St. Vincent Botanic Garden. Anderson is known to have sent both his wild collected material and specimens from the plants after cultivation on St. Vincent to Forsyth and to l'Héritier. The *Cleome* material may indeed have come from Smeathman, but certainly not that of *Carapa*.

CEDRELA P. Browne

Cedrela P. Browne, Civ. Nat. Hist. Jamaica 158. 1756.

Deciduous trees. Leaves paripinnate; leaflets 8-20 pairs, opposite or subopposite, glabrous, variable in shape and asymmetry, often with domatia in axils

of primary veins. Inflorescences terminal, much-branched thyrses; flowers 5-merous, functionally unisexual; calyx cupshaped, split on one side or five-lobed; petals imbricate, free but fused to the nectary and not spreading; stamens 5, free, adnate to the androgynophore below; ovary 5-locular, stalked on an androgynophore, ovules 8-14, style short, stigma discoid. Fruit a septifragal capsule, opening from apex, valves thin to woody, seeds with terminal wing attached to apical portion of persistent columella.

TYPE SPECIES: *Cedrela odorata* L.

A genus of 8 species of the New World tropics.

REFERENCE: C. E. Smith, Fieldiana, Bot. **29**(5): 295-341. 1960.

***Cedrela odorata* L.**, Syst. Nat. ed. 10, **2**: 940. 1759.

FIGURE 229.

Type: Browne, Civ. Nat. Hist. Jamaica *t. 10, f. 1*.

Syn.: *Cedrela mexicana* M. Roemer, Fam. Nat. Syn. Monogr. **1**: 137. 1846. (Type: Mexico, Depe & Schiede 1304 (holotype, LE).)

Tree to 40 m. Leaves to 45 cm long; leaflets 5 to 11 pairs, broadly lanceolate to ovate, 8-17 x 2.5-5.5 cm, the lowest much smaller, membranaceous, entire or undulate below and minutely serrate above, base acute to rounded and usually oblique, apex acuminate. Inflorescence terminal or subterminal usually diffuse, lax, shorter than leaves; calyx split along one side, 1.5-3 mm, 5-toothed; petals elliptic, 7-8 mm, puberulent, stamens 2-3 mm. Capsule oblong-ellipsoid, pendulous, 2-3.5 x 2 cm, 5-valved; seeds brownish, 2-3 cm including wings.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, Trinidad, South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, St. Lucia!, Grenada!, Barbados!.

COMMON NAMES: Acajou-bois, acajou rouge, red cedar, West Indian cedar, cigar-box wood, Spanish cedar.

GUAREA L.

***Guarea* L.**, Mant. Pl. 150, 228. 1771, nom. cons.

Trees. Leaves pinnate; leaflets sometimes punctate, glabrous or with hairs in axils of primary veins. Inflorescence paniculate or racemose, axillary or cauliflorous; flowers functionally unisexual, calyx cupshaped, entire or 3-7-toothed; petals 4-6, free, valvate, staminal tube cylindrical, margin entire, stamens 8, included, nectary forming collar at base of ovary; ovary 2-10-locular, ovules 1 or 2, superposed in each locule, style short, stigma discoid. Fruit a loculicidal capsule, locules 1-2-seeded, 2-10-valved, pericarp leathery; seeds angular, with thin sarcotesta.

TYPE SPECIES: *Guarea trichilioides* L. = *Guarea guidonia* (L.) Sleumer.

A genus of 35 species of tropical America with 5 species in tropical Africa.



FIGURE 229. *Cedrela odorata*, x 0.45.

NOTES: Fournet (1978) recognized *Guarea guidonia* (L.) Sleumer from Guadeloupe and Martinique, but did not cite specimens and none has been seen. Pennington excluded this species from the Lesser Antilles. Fournet also recognized *Guarea perrottetiana* Adr. Juss. and *G. ramiflora* Vent., both of which were placed in synonymy by Pennington.

KEY TO THE SPECIES

1. Ovary pilose or tomentose, hairs usually persisting on fruit; fruit ribbed or verrucose; leaflets not bearded in axils of veins *G. macrophylla*

1. Ovary glabrous; fruit smooth.
2. Leaflets 2 pairs, primary veins prominent and terminating at or near margin, ultimate venation densely reticulate; leaflets often bearded in axils of veins; fruit without conspicuous pale lenticels *G. glabra*
2. Leaflets 4 pairs, primary veins slender and not extending to near margin, ultimate venation obscure, axillary pubescence wanting; fruit dark with conspicuous pale lenticels *G. kunthiana*

Guarea glabra Vahl, *Eclog. Amer.* **3**: 8. 1807.

Type: Montserrat, *Ryan* (holotype, c).

Syn.: *Guarea ramiflora* Vent., *Mém. Math. Phys. Inst. Nat. Fr.* **1**: 20. 1807. (Type: Puerto Rico, without collector cited (holotype, c).)

Guarea vahliana Adr. Juss., *Mém. Mus. Hist. Nat.* **19**: 240, 282. 1830. (Type: Guadeloupe, *Perrotet s.n.* (holotype, p).)

Guarea l'herminieri C. DC., *Bull. Herb. Boissier* **2**: 571. 1894. (Type: Guadeloupe, *l'Herminier s.n.* (holotype, g).)

Tree to 10 m. Leaves 5-10 cm long; leaflets 2 pairs, elliptic to oblanceolate, subcoriaceous 8-20 x 4-7 cm, glabrous except for tufts of hairs in axils of veins, sparsely glandular-punctate or striate, densely reticulate-veined, dormant bud well developed, base usually attenuate, apex acuminate to obtuse. Inflorescence axillary usually on older wood at leafless nodes, paniculate, 3-15 cm long; calyx rotate, 0.5-1.5 mm, with 4 shallow acute to rounded lobes; petals 4, valvate, 4-8 mm long, sparsely appressed pubescent or glabrate outside; staminal tube 3.5-7 mm, margin undulate; ovary 4-loculed, usually glabrous. Capsule globose or flattened and broader than long, 1-2.8 x 2-4 cm, glabrous, 4-valved; seeds angular on 2 sides, rounded on the other, 1-2 cm, with fleshy sarcotesta.

GENERAL DISTRIBUTION: Mexico, Central America, Jamaica, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Marie Galante, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada.

NOTE: *Ryan* lived on Montserrat but visited and collected on St. Croix. The holotype is marked Montserrat. There is no evidence of a place called Montserrat on St. Croix as Pennington suggested in the citation.

Guarea kunthiana Adr. Juss., *Mem. Mus. Hist. Nat.* **19**: 241, 290. 1830.

Type: Cayenne, *Poiteau s.n.* (holotype, p).

Syn.: *Guarea kunthiana* Adr. Juss. var. *hahnii* C. DC., *Monogr. Phan.* **1**: 562. 1878. (Lectotype: Martinique, *Hahn 487* (g-DC).)

Guarea kunthiana Adr. Juss. var. *hahnianum* Krug & Urban ex Duss, *Fl. Phan. Antill. Franç.* 128. 1897. (Type: Martinique, *Duss 1489*.)

Tree to 15 m. Leaves 8-16 cm long; leaflets 2 pairs, terminal dormant bud well developed, elliptic to elliptic-obovate, 15-20 x 5-10 cm, coriaceous, glabrous, secondary veins obscure, base rounded, apex abruptly and obtusely short-acuminate. Inflorescence axillary to 8 cm; calyx campanulate, flaring, lobes obtuse, puberulent; petals 4, oblong, 8.5-9 mm, acute; staminal tube cylindric, puberulent outside, apex entire; ovary ribbed, glabrous. Fruit subpyriform to ellipsoidal,

3-3.5 x 2-2.5 cm, glabrous, 4-valved, conspicuously lenticillate; seeds 2, arillode red.

GENERAL DISTRIBUTION: Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Known from but two old collections made on Martinique.

COMMON NAMES: Goyavier-bois, bois de rose, bois-pistolet.

Guarea macrophylla Vahl, *Eclog. Amer.* **3**: 8. 1807.

FIGURE 233.

Type: Montserrat, *Ryan s.n.* (holotype, c).

Syn.: *Guarea perrottetiana* Adr. Juss., *Mém. Mus. Hist. Nat.* **19**: 241, 285. 1830. (Type: Guadeloupe, *Perrottet 271* (holotype, p).)

Tree to 20 m. Leaves pinnate, 15-30 cm long; leaflets 8 pairs, oblong-elliptic to ovate or oblong-obovate, 10-20 x 4-9 cm, dormant terminal bud minute, subcoriaceous, glabrous above, puberulent below, punctate, entire, base rounded or acute, apex abruptly acuminate. Panicle racemiform, 20-40 cm; calyx cupshaped, reddish pubescent, 2-4-lobed, stipe 1 mm; petals oblong 9-11 mm, cream-colored, densely pubescent; staminal tube cylindric, 8-10 mm, entire or shallowly lobed, disc prominent, columnar, glabrous; ovary 4-loculed, short hirsute, style columnar, stigma peltate, exserted. Fruit globose-pyriform, 2.5-2.8 x 0.8-2.5 cm, shallowly and irregularly costulate or torulose, velutinous; seeds solitary in each cell, sarcotesta orange.

GENERAL DISTRIBUTION: South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua, Montserrat!, Guadeloupe!, Marie Galante, Dominica!, Martinique!, St. Vincent!, Grenada!.

COMMON NAMES: Bois 'goute, bois rouge, bois pistolet, bois arab, acajou grande.

NOTE: Pennington considers ssp. *macrophylla* as restricted to the Lesser Antilles, and the other 4 subspecies to be in South America.

MELIA L.

Melia L., *Sp. Pl.* **1**: 384. 1753.

Trees. Leaves bipinnately compound; leaflets numerous, entire or toothed. Inflorescence axillary, paniculate; sepals 5 or 6; petals 5 or 6, free and spreading, imbricate; staminal tube cylindric, dilated at apex, 10-12-toothed, anthers 10-12, included; disc annular; ovary 3-6-celled, style columnar, slender, stigma 5- or 6-lobed, ovules 2 in each locule. Fruit drupaceous, 1-6-celled.

TYPE SPECIES: *Melia azedarach* L.

A genus of 2 or more species of Old World tropics and subtropics.

Melia azedarach L., *Sp. Pl.* **1**: 384. 1753.

FIGURE 231.

Lectotype: Syria, Hort. Cliff. 161.1 (BM).



FIGURE 230 (upper left). *Azadirachta indica*, x 0.35. FIGURE 231 (upper right). *Melia azedarach*, x 0.35. FIGURE 232 (lower left). *Trichilia hirta*, x 0.35. FIGURE 233 (lower right). *Guarea macrophylla*, x 0.35.

Tree to 15 m, young stems with stellate pubescence. Leaves bi- or tri-pinnate, 30-80 cm long; leaflets lanceolate to ovate, 3-8 x 0.8-3 cm, margin incised, serrate or lobed, base acute to rounded, apex acute to long-acuminate. Panicles 8-25 cm, sepals lanceolate to elliptic, 1.5-3 mm; petals oblanceolate 8-12 mm, spreading, purplish or white; staminal tube dark purple, 7 mm; ovary glabrous. Drupe subglobose, 1.3-1.8 mm dia., yellow, smooth; endocarp bony, furrowed.

GENERAL DISTRIBUTION: Native of Old World but widely cultivated, persisting or escaped in neotropics.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts, Barbuda!, Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent, Barbados!.

COMMON NAMES: Lilas-pays, soap berry, China berry, Barbados lilac, West Indian lilac, syringa.

SWIETENIA Jacq.

Swietenia Jacq., Enum. Syst. Pl. 4, 20. 1760.

Deciduous trees. Leaves paripinnate; leaflets entire, glabrous. Inflorescences thyrsoid, axillary; flowers functionally unisexual or pistillate; calyx 5-lobed, imbricate; petals 5, contorted in bud, reflexed on maturity; staminal tube cup-shaped to urceolate, anthers 10, partly exserted, alternating with acuminate appendages; nectary patelliform to annular; ovary 5-loculed, ovules 9-16 in each locule, style short, stigma discoid. Fruit erect woody ovoid septifragal capsule, valves 5, thick and woody, opening from base, columella stout; seeds winged, attached by apex of wing to columella.

TYPE SPECIES: *Cedrela mahag* L. = *Swietenia mahagoni* (L.) Jacq.

A genus of 3 species of neotropics.

KEY TO THE SPECIES

Leaflets 9-13 cm long; capsule 12-15 (-22) cm long; seeds 7.5-10 cm long; sepals and petals ciliate	<i>S. macrophylla</i>
Leaflets 4-6 cm long; capsule 6-10 cm long; seeds 2-5 cm long; sepals and petals not ciliate	<i>S. mahagoni</i>

Swietenia macrophylla King in Hook., Icon. Pl. 16: t. 1550. 1886.

Type: India, Calcutta Botanical Garden (cultivated plant), *King s.n.* (holotype, K).

Tree to 20 m. Leaves paripinnate, 16-30 cm, leaflets 3-6 pairs, oblong to ovate-lanceolate, 9-15 x 3-6 cm, slightly falcate, chartaceous, base asymmetric, truncate, rounded or subcordate, apex acute. Inflorescence axillary or subterminal, 10-18 cm, glabrous; pedicels 1.5-2.5 mm; calyx 5-lobed, lobes rounded, 1-1.5 mm, ciliate; staminal tube cylindric, 3-4.5 mm, glabrous; functional ovary globose, glabrous, style 1.5 mm, stigma discoid, lobed. Capsule 10-15 cm long or larger,

6-8 cm dia., grayish brown, smooth or slightly verrucose, valves 6-9 mm thick, woody; seeds 7.5-10 cm long, dark brown.

GENERAL DISTRIBUTION: Mexico, Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Central American mahogany, mahogani-grandes feuilles, mahogani du Honduras, Honduras mahogany.

NOTE: Introduced and cultivated in forest plantings but now becoming established in various mountain areas.

Swietenia mahagoni (L.) Jacq., Enum. Syst. Pl. 10. 1760. FIGURE 234.

Basionym: *Cedrela mahag(oni)* L., Syst. Nat. ed. 10, 2: 940. 1759.

Type: Catesby, Nat. Hist. Carolina t. 81.

Deciduous trees, to 10 m. Leaves to 30 cm long; leaflets 2-5 pairs, petiolate, ovate to lanceolate, 3-8 x 0.5-3 cm, coriaceous, base strongly inequilateral, rounded to cuneate, apex acuminate. Inflorescences axillary to terminal, 5-10 cm, pedicels 1.5-3 mm; calyx 5-lobed, lobes rounded, imbricate, not ciliate; petals oblong, 3.5-4.5 mm, glabrous; staminal tube urceolate to cylindric, 3-4 mm, functional ovary globose, glabrous. Capsule erect, ovoid, 6-10 x 3-6 cm, dark brown, 5-valved, valves woody, 4-5 mm thick; seeds 4-5 cm long including wing, chestnut-brown.

GENERAL DISTRIBUTION: Southern Florida, Bahamas, Greater Antilles, Trinidad.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, Saba!, St. Eustatius!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Mahogany, West Indian mahogany, mahogani petites feuilles, mahogani de Saint-Dominique.

NOTES: Mahogany has become scarce in the Lesser Antilles due to cutting. A few large trees are seen in dry areas, but in some areas myriads of seedlings develop around isolated mature specimens.

RELATED SPECIES

Swietenia aubrevilleana Stehlé & Cusin, Mem. Soc. Bot. France **1956-7:** 41-51. 1957.

Type: *H. & M. Stehlé & Maximilien 8001.* (n.v.)

This was described as a putative hybrid of *S. mahagoni* and *S. macrophylla*, intermediate in characters of leaf and fruit size, supposedly of faster growth and better resistance to drought. A few sterile plants, possibly this taxon, were seen in the area of Trois Îlets on Martinique. The original description referred to plants on Guadeloupe.



FIGURE 234. *Swietenia mahagoni*, x 0.45.

TRICHILIA P. Browne

Trichilia P. Browne, Civ. Nat. Hist. Jamaica 178. 1756, nom. cons.

Trees or large shrubs. Leaves 3-foliate or imparipinnate, rarely unifoliate; leaflets entire, often pellucid-punctate. Inflorescence axillary, cymose, paniculate or thyrsoid; flowers functionally unisexual; calyx 4-5-parted; petals free, spreading; staminal tube cleft, anthers exserted, disc annular, ovary 2-3-celled, stigmas capitate, lobed, ovules 1 or 2 in each locule. Fruit a loculicidal capsule, mostly 3-valved, valves leathery; seeds with fleshy arillode.

TYPE SPECIES: *Trichilia hirta* L., type cons.

A genus of perhaps 300 species in neotropics and in tropical Africa.

KEY TO THE SPECIES

1. Leaflets 3 or 1, rarely 5, usually long-acuminate; inflorescences cymose, 1-3 cm long, axillary or commonly at leafless nodes; capsule ovoid to globose, 1-2 cm dia. *T. pallida*

1. Leaflets 7-21, acute or short-acuminate; inflorescences axillary, paniculate or thyrsoid, longer than 5 cm.
2. Leaflets 16-21, glabrous; inflorescences 10-15 cm; capsule globose, to 1.5 cm, puberulent and verrucose *T. hirta*
2. Leaflets 7-9, rusty puberulent; inflorescences 15-40 cm.
3. Leaflets 7-11, elliptic, 14-26 x 5-13 cm, primary veins 18-25 pairs, tertiary venation loose, parallel; inflorescences 15-40 cm; capsule oblong to 3.5 cm long, 1.5 cm dia., longitudinally furrowed, puberulous *T. septentrionalis*
3. Leaflets 9, oblanceolate, 10-17 x 4-7 cm, primarily veins 11-13 pairs, tertiary venation reticulate; inflorescence 15 cm; capsule ovoid or globose, to 1.3 cm dia., surface transversely wavy furrowed, puberulous *T. martiana*

Trichilia hirta L., Syst. Nat. ed. 10, 2: 1020. 1759.

FIGURE 232.

Type: Jamaica, typotype: Herb. Sloane 7, no. 30.

Tree 8 m, branches coarsely pubescent. Leaves imparipinnate, 10-30 cm; leaflets 9 or 13-21, oblong, elliptic to lanceolate, 3-13 x 1.5-3.5 cm, usually glabrous, chartaceous, with red papillae and glandular-punctate, base often asymmetric, attenuate to rounded or truncate, apex attenuate or acuminate. Inflorescence axillary, 2-15 cm, cymose branches 1-4 cm, unisexual, plants dioecious, pedicels 0.5-2 mm; calyx rotate, lobes to 1 mm, ovate to triangular, glabrous; petals free, imbricate, oblong, 5-6 mm, glabrous or puberulent; staminal tube 1-3 mm, filaments fused at base, villose within, anthers 10, sparsely pubescent; nectary annular; ovary 3-locular, each locule with 1 or 2 collateral ovules, densely pubescent. Capsule globose to ovoid, verrucose, 0.7-1.5 cm dia., 3-valved, valves leathery, sparsely pubescent, reflexed; seeds 1 or 2 in each locule, generally covered with thin aril.

GENERAL DISTRIBUTION: Mexico, Central America, Greater Antilles, South America.

DISTRIBUTION IN LESSER ANTILLES: The Grenadines!, Grenada!.

Trichilia martiana C. DC. in C. Martius, Fl. Bras. 11(1): 205. 1878.

Type: Brazil, *Riedel s.n.* (holotype, LE).

Tree to 15 m. Leaves imparipinnate, 13-25 cm; leaflets 7-9, oblanceolate or cuneiform, 10-17 x 3.5-7 cm, chartaceous, rusty pubescent on midrib and veins above, puberulent below, glandular-punctate, base acute to cuneate, apex attenuate to cuspidate. Inflorescence axillary, 7-20 cm, paniculate, flowers in dense umbellate fascicles; calyx patelliform, 1-1.5 mm, lobes ovate, 5, puberulous; petals 5, free, imbricate, 2.5-4 mm, appressed pubescent outside; staminal tube 1.5-2 mm, pubescent, anthers 8, sparsely hairy; nectary annular, ovary ovoid, 2-3-locular, each locule with 2 collateral ovules, densely pubescent, style stout, pubescent. Capsule ovoid or globose, 0.9-1.3 cm dia., surface puberulent, transversely wavy-furrowed, base truncate, 3-valved, these leathery; seeds 0.7-1.1 cm, angular, aril red.

GENERAL DISTRIBUTION: Mexico, Central America, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Known from a single collection from St. Vincent, *Beard 227* (A) collected in the Buccament Valley.

***Trichilia pallida* Sw., Prodr. 677. 1788.**

Type: Hispaniola, *Swartz s.n.* (holotype, s).

Syn.: *Hedwigia simplicifolia* Sprengel, Neue Entdeck. Pflanzenk. **3**: 24. 1822. (Type: Martinique, *Sieber 295* (holotype, MEL).)

Trichilia simplicifolia (Sprengel) Sprengel, Syst. Veg. **3**: 69. 1826.

Trichilia diversifolia Adr. Juss., Mém. Mus. Hist. Nat. **19**: 237, 278. 1830. (Type: Guadeloupe, herb. Richard (holotype, P).)

Pholacilia diversifolia (Adr. Juss.) Griseb., Fl. Brit. W. Indian Is. 130. 1860.

Tree 12 m. Leaves imparipinnate, trifoliate or unifoliate, 4-15 cm long; leaflets elliptic to oblanceolate, 9-24 x 4-13 cm, basal leaflets smaller, glabrous or puberulous, with granular red papillae, often glandular-striate, base obtuse to truncate, apex attenuate, acuminate or cuspidate, asymmetrical. Inflorescence axillary or cauliflorous below leaves, 1-3 cm, irregularly cymose; calyx patelliform to rotate, 1-2 mm, lobes 4, ovate or triangular, puberulent; petals imbricate, 4, elliptic to lanceolate, 4-5 mm, puberulent; staminal tube cylindric, 2-3.5 mm, anthers pubescent, 8; nectary annular, ovary 3-locular, loculi with 2 ovules, pubescent, style slender. Capsule ovoid to globose, 1-2 cm in diameter, smooth, puberulous, transversely wavy, 3-valved, usually only 1 seed per fruit, to 1 cm, arillode fleshy, orange.

GENERAL DISTRIBUTION: Mexico, Central America, Hispaniola, Puerto Rico.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!

COMMON NAMES: Bois masse, bois de fer bâtard, châtaignier noir.

***Trichilia septentrionalis* C. DC. in C. Martius, Fl. Bras. 11(1): 220. 1878.**

Type: Brazil, *Spruce 1890* (holotype, G-DC).

Syn.: *Trichilia moritzii* C. DC., Monogr. Phan. **1**: 707. 1878. (Lectotype: Venezuela, *Moritz 1681* (B).)

Tree to 20 m. Leaves imparipinnate, 20-40 cm; leaflets 5-11, elliptic, oblong or oblanceolate 14-26 x 5-12 cm, subcoriaceous, puberulous or glabrous, with red papillae, apex acuminate, base cuneate or attenuate. Inflorescence axillary, 10-40 cm laxly branched; calyx patelliform 1.5-2.5 mm, sepals 4, imbricate, orbicular, 2-2.5 mm, ciliate; petals 5-7 imbricate, broadly spatulate to ovate, 3-5.5 mm, puberulous to sericeous outside; staminal tube cyathiform, or short cylindric, 2-4.5 mm, margin with subulate appendages, anthers 6-10, glabrous; nectary annular, ovary ovoid, 3-locular, loculi with single ovule. Capsule oblong, obovoid or ellipsoidal, 1.3-3.3 cm x 0.9-1.7 cm, smooth to verrucose, puberulous, longitudinally furrowed, 3-valved; seeds 1 or 2 per fruit, 1-2.5 cm long, covered with thin red arillode.

GENERAL DISTRIBUTION: Costa Rica, Panama, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Vincent!.

COMMON NAME: Bois pistolet.

MALPIGHIACEAE

by William R. Anderson

MALPIGHIACEAE A. L. Juss., Gen. Pl. 252. 1789.

Trees, shrubs, and vines, always perennial; hairs unicellular, usually medifixed or submedifixed. Stipules usually present. Leaves usually opposite, often bearing large multicellular glands on petiole or lamina below or both; lamina simple, usually entire, rarely lobed or pseudodentate. Flowers almost always perfect, subtly to strongly bilaterally symmetrical; sepals 5, eglandular or, most often, lateral 4 or all 5 bearing (1 or) 2 large multicellular abaxial glands; petals 5, free, clawed, alternating with sepals, imbricate, innermost (flag) petal posterior and often different from lateral 4; stamens mostly 10, fewer by reduction in some genera, anthers usually dehiscent by longitudinal slits; gynoecium superior, comprising (2 or) 3 free to connate carpels, each fertile locule containing 1 pendent anatropous ovule; styles usually 1 per carpel, rarely connate or reduced in number. Fruits dry or fleshy, dehiscent or indehiscent, samaroid, nutlike, or drupaceous; seed without endosperm.

TYPE GENUS: *Malpighia* L.

About 70 genera with over 1250 species, pantropical but far more numerous and diverse in the New World than in the Old. For additional information see F. Niedenzu, in A. Engler, Pflanzenr. IV. Vol. **141**: 1-870. 1928; J. Cuatrecasas, *Webbia* **13**(2): 343-664. 1958; W. R. Anderson in B. Maguire, The Botany of the Guayana Highland - Part XI. Mem. New York Bot. Gard. **32**: 21-305. 1981.

Successful use of the keys to genera and species requires an understanding of what I mean by certain morphological terms. The most important of these are defined here; for more details, see pp. 24-26 of my treatment of the Malpighiaceae of the Guayana Highland.

The ancestral inflorescence of the Malpighiaceae was a thyrs, a raceme of cincinni, but in all species of the Lesser Antilles the cincinni have been reduced to one-flowered units. Each flower is borne on a *pedicel*, which terminates proximally in a joint; below the joint the stalk is called the *peduncle*, and the peduncle bears two *bracteoles*; the peduncle is subtended by a single *bract*. The peduncle has been lost in several evolutionary lines, in which case the pedicel is described as sessile, subtended then by a cluster of the bract and two bracteoles. The inflorescence often contains more or less reduced leaves that do not immediately subtend a floriferous peduncle or pedicel. While these may be taken for bracts in the general sense of that term, in this treatment the term bract, unmodified, is reserved for the structure subtending a floriferous stalk.

The flowers are bilaterally symmetrical, although sometimes nearly radial. The posterior, or flag, petal is erect and usually different from the other four

petals. Across the flower from it is the anterior sepal, which is often eglandular when the other four are biglandular. These two organs define a plane of symmetry and serve as reference points for the descriptions. The lateral sepals and petals, each with its mirror-image twin across the flower, can be designated by the terms anterior-lateral pair and posterior-lateral pair. The stamens are denoted by reference to the sepal or petal to which they are nearest. The carpels are usually situated such that one is anterior, more or less on the plane of symmetry, and the other two are posterior, one on each side of the plane of symmetry.

KEY TO THE GENERA

(for specimens with flowers)

1. Styles slender and subulate; stigmas minute; shrubs or trees.
 2. Leaves eglandular *Byrsonima*
 2. Leaves bearing large glands on abaxial surface of laminae *Galphimia*
1. Styles stout and of uniform thickness or widened at apex; stigmas large; vines, shrubs, or trees.
 3. Petals pink or white.
 4. Shrubs or small trees; petioles eglandular *Malpighia*
 4. Woody vines, rarely shrubby; petioles usually biglandular near middle *Heteropterys*
 3. Petals yellow or yellow and red.
 5. Petals abaxially densely sericeous *Mascagnia*
 5. Petals glabrous.
 6. Style apparently 1 (result of partial to complete fusion of 2); stigmas apical; ovary 2-locular; bracteoles (1 or both) often bearing 1 large abaxial gland *Bunchosia*
 6. Styles 3; stigmas internal, apex of styles dorsally rounded, truncate, or extended into a hook or flap; ovary 3-locular; bracteoles eglandular or rarely each bearing 2 tiny abaxial glands.
 7. Stipules borne on petiole, between middle and apex *Hiraea*
 7. Stipules borne on base of petiole, or on stem between petioles, or absent.
 8. Anthers very unequal, 4 opposite lateral sepals with locules small or absent, 1 opposite posterior petal often small *Stigmaphyllon*
 8. Anthers more or less alike.
 9. Inflorescences terminating in pseudoracemes of 10 to 60 flowers *Heteropterys*
 9. Inflorescences terminating in umbels of (3 or) 4 (to 6) flowers.
 10. Styles acute and unappendaged at apex; peduncle 4-6 mm long; pedicel 5-8 mm long *Tetrapterys*
 10. Styles bearing dorsal hooks 1-1.7 mm long at apex; peduncle 0.2-2.5 mm long; pedicel 15-30 mm long *Stigmaphyllon*

KEY TO THE GENERA

(for specimens with fruits)

1. Fruits unwinged, indehiscent or schizocarpic.
 2. Fruits dry at maturity, schizocarpic *Galphimia*
 2. Fruits fleshy, indehiscent.

3. Leaves eglandular; fruits containing 1 unlobed trilocular stone; styles slender and subulate; stigmas minute *Byrsonima*
3. Leaves usually bearing large glands on petiole or abaxial surface of laminae; fruits containing 2 or 3 unilocular pyrenes, free or united in center; styles stout; stigmas large.
 4. Bracteoles (1 or both) often bearing 1 large abaxial gland; style apparently 1 (result of partial to complete fusion of 2) *Bunchosia*
 4. Bracteoles all eglandular; styles 3 *Malpighia*
1. Fruits winged, schizocarpic (wing of each mericarp much reduced in *Stigmaphyllon ovatum*).
 5. Samaras with largest wings lateral.
 6. Stipules borne on petiole, between middle and apex; pedicel sessile ... *Hiraea*
 6. Stipules borne on stem between petioles; pedicel raised on peduncle at least 1 mm long, often longer.
 7. Samaras with 2 lateral wings, 1 on each side *Mascagnia*
 7. Samaras with 4 lateral wings, 2 on each side *Tetrapteryx*
 5. Samaras with largest wing dorsal.
 8. Samaras 50-70 mm long *Heteropteryx*
 8. Samaras 13-45 mm long.
 9. Petioles usually biglandular near middle *Heteropteryx*
 9. Petioles biglandular at apex, or glands on lamina just above apex of petiole *Stigmaphyllon*

BUNCHOSIA Kunth

BUNCHOSIA Rich. ex Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 153 (quarto ed.). 1821 [1822].

Shrubs or trees. Stipules small, free from each other, borne on base of petiole. Leaves usually bearing impressed glands on lamina. Inflorescence a pseudoraceme, simple or less commonly ternate, axillary without vegetative leaves or terminating a lateral shoot with 1 pair of vegetative leaves; 1 or both bracteoles often bearing 1 (or 2) glands. Calyx bearing 8 to 10 often decurrent glands; petals yellow or whitish, glabrous; stamens 10, glabrous, anthers more or less alike; ovary with 2 or 3 connate carpels, locules 2 or 3, all fertile; styles as many as carpels, free or partially to completely connate, stout, large terminal stigmas subpeltate or apparently capitate. Fruit a "drupe" (actually a berry) with 2 or 3 1-seeded pyrenes in a common fleshy exocarp, yellow, orange, or red at maturity; pyrenes free from each other at maturity, with smooth, brittle, cartilaginous wall.

TYPE SPECIES: *Bunchosia odorata* (Jacq.) Kunth.

A genus of about 55 species, occurring from Mexico and the West Indies to Paraguay and southern Brazil.

KEY TO THE SPECIES

1. Ovary sericeous; laminae thinly but persistently sericeous below, bearing 0 to 2 glands below near base and several distally in 1 to 3 rows; fruits (dried) 20-28 mm long at

- maturity, walls smooth *B. glandulifera*
1. Ovary glabrous or very sparsely sericeous; laminae glabrate at maturity, bearing (0 to) 2 glands below, at or somewhat above base; fruits (dried) 7-14 mm long at maturity, walls granulate.
 2. Pseudoracemes bearing 4 to 8 (to 11) flowers; connective of anthers dark brown, red, purple, or black; laminae of larger leaves 1.2-2.8 (-3.6) cm wide; dry open rocky places at low elevations, especially coppices on calcareous soil or rocks *B. glandulosa*
 2. Pseudoracemes bearing 10 to 30 (to 40) flowers; connective of anthers yellow or light brown; laminae of larger leaves 3-8 cm wide; woodlands or forests, in relatively mesophytic to moist places from near sea level to 1000 m *B. polystachia*

***Bunchosia glandulifera* (Jacq.) Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 154 (quarto ed.). 1821 [1822].**

Basionym: *Malpighia glandulifera* Jacq., Collectanea 4: 207. 1790 [1791] & 5: pl. 5, fig. 3. 1796 [1797].

Type: Caracas, Venezuela, *Jacquin*.

Syn.: *Malpighia platyphylla* Sw. ex Wikström, Kongl. Svenska Vetenskapsakad. Handl. 1827: 66. 1828. (Type: Guadeloupe, *Forsström* (NY!, US!).)

Bunchosia emarginata var. *martinicensis* Urban & Niedenzu, in Niedenzu, De genere *Bunchosia*, 15. 1898. (Lectotype: Martinique, *Duss 643b*, (NY!).)

Bunchosia martinicensis (Urban & Niedenzu) Small, N. Amer. Flora 25(2): 166. 1910.

Shrub or small tree 2-8 m tall. Leaves with petioles 5-10 mm long, eglandular or bearing 2 to 4 glands on distal half; laminae of larger leaves elliptical or ovate, 11-18 × 6-10 (-12) cm, base rounded and often slightly attenuate, margin undulate and crispate, apex acuminate and often cuspidate, bearing 0 to 2 glands below near base by midrib and several distally in 1 to 3 rows, sparsely sericeous to glabrate above, thinly but persistently sericeous below. Inflorescences 5-11 cm long; flowers 10 to 20; peduncles 2.5-5 (-8) mm long; 1 or occasionally both bracteoles bearing an abaxial gland. Calyx bearing 9 or 10 glands; petals yellow, lateral 4 eglandular-dentate, posterior glandular-dentate, at least proximally; filaments 2.5-3.5 mm long, to 1/2 connate; anthers with connective yellow or light brown; ovary bicarpellate, sericeous; style (formed by 2 connate) 2.5-3.5 mm long, sericeous, stigmas nearly distinct, reniform-peltate. Fruits orange to red, when dried 20-28 mm long and 15-20 mm in diameter, globose or ellipsoid, very sparsely sericeous to glabrate, wall smooth.

GENERAL DISTRIBUTION: Cultivated, and perhaps locally escaped, in Puerto Rico; widely cultivated and perhaps native in northern South America (Suriname, Venezuela, Colombia, Peru), but exact origin unknown; widely cultivated in Brazil, especially in the Amazon region but also in Rio de Janeiro and Brasília.

DISTRIBUTION IN LESSER ANTILLES: Montserrat, Guadeloupe!, Martinique!, Grenada!.

COMMON NAMES: Café moka, café bois, prune café.

NOTES: This species, with its large edible fruit, is probably not native in the Lesser Antilles. Duss noted on labels that it was cultivated in Guadeloupe, and that in Martinique it was introduced in the Botanical Garden of St. Pierre,

whence it spread over the island. The labels with *Stehlé 404* from Guadeloupe and *4998* from Martinique make no mention of its being cultivated, so perhaps the species is now naturalized, but the paucity of collections from the Antilles suggests that it has not strayed far from inhabited areas.

***Bunchosia glandulosa* (Cav.) DC., Prodr. 1: 581. 1824.**

Basionym: *Malpighia glandulosa* Cav., Diss. 8: 411, pl. 239. 1789.

Type: Santo Domingo (P-JU 11526!, probable type).

Syn.: *Bunchosia acutifolia* Adr. Juss., Arch. Mus. Hist. Nat. 3: 336. 1843. (Type: Cultivated plant of uncertain origin (P-JU 11527!).)

Shrub or small tree 2-4 (-8) m tall. Leaves with petioles 3-10 mm long, eglandular; laminae of larger leaves elliptical, 3.5-9.3 × 1.2-2.8 (-3.6) cm, base tapered or cuneate, margin flat, apex obtuse, acute, or acuminate, bearing (0 to) 2 glands below, at or somewhat above base on surface, glabrate. Pseudoracemes 2-6 cm long, of 4 to 8 (to 11) flowers, axillary or 1 to 3 (to 5) terminating short lateral shoot with 1 pair of vegetative leaves; peduncle 0.5-3 mm long; 1 bracteole bearing abaxial gland or both eglandular. Calyx bearing 8 glands; petals yellow, eglandular except posterior often bearing 1 or 2 glands at base of limb; filaments 2-2.8 mm long, 1/2-3/4 connate, forming membranous tube; anthers with connective dark brown, red, purple, or black; ovary bicarpellate, glabrous; style (formed by 2 connate) 2-2.5 mm long, glabrous, stigmas usually distinct. Fruits dark yellow to red, 7-9 (-13) mm long and in diameter (dried), globose or ovoid, glabrous, wall granulate.

GENERAL DISTRIBUTION: Bahamas, Hispaniola, Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, Montserrat, Guadeloupe!, Martinique.

COMMON NAME: Stinkwood.

NOTES: Plants of dry, open, rocky places at low elevations, especially coppices on calcareous soil or rocks. Flowers in all months, but most frequently collected from February to August. The apparently 8 glands on the calyx may actually comprise 10 with those of the anterior sepal fused with adjacent glands. The true nature of the 2 broader anterior glands will be revealed only by anatomical study.

***Bunchosia polystachia* (Andrews) DC., Prodr. 1: 581. 1824. FIGURE 235a-f.**

Basionym: *Malpighia polystachia* Andrews, Bot. Repos. 9: pl. 604. 1810.

Type: A cultivated plant supposed to have originated in Trinidad (but see discussion below); no specimen is known to exist.

Syn.: *Bunchosia nitida* (Jacq.) DC. var. *grenadensis* Urban & Niedenzu in Niedenzu, De genère *Bunchosia* 9. 1898. (Type: Grenada, *Eggers 6375* (A!, lectotype; US!, isoelectotype).)

?*Malpighia media* R. Br. in W. T. Aiton, Hort. Kew. ed. 2, 3: 103. 1811. (Type: Cultivated plant originating in "West Indies" (not found at BM or K; perhaps no specimen preserved).)

?*Bunchosia media* (R. Br.) DC., Prodr. 1: 581. 1824.

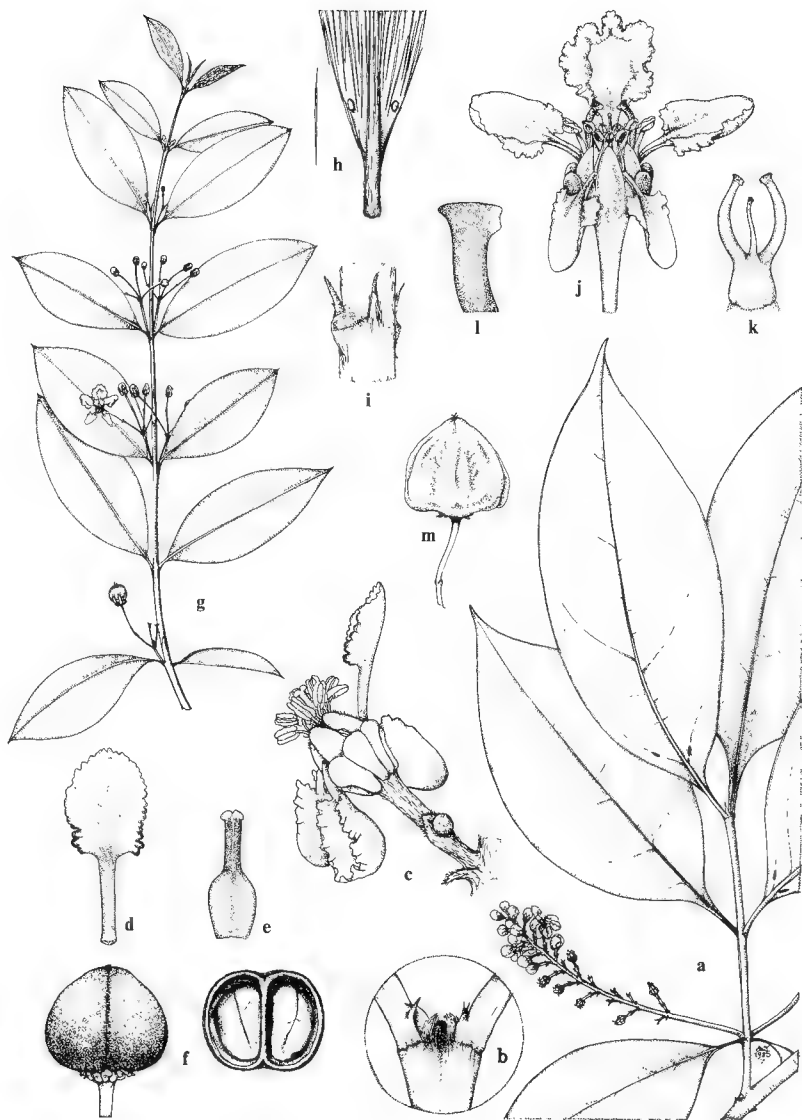


FIGURE 235. a-f, *Bunchosia polystachia*: a, flowering branch, $\times 0.45$; b, stipules, $\times 4.5$; c, flower, side view, $\times 3$; d, posterior petal, $\times 3.5$; e, gynoecium, $\times 4.5$; f, fruit, whole and in cross section, $\times 1.4$. g-m, *Malpighia martinicensis*: g, flowering branch, $\times 0.45$; h, abaxial base of leaf and one hair, $\times 4.5$; i, stipules, $\times 4.5$; j, flower, from front, $\times 3$; k, gynoecium, anterior style in center, $\times 3.5$; l, apex of posterior style, $\times 18$; m, fruit, $\times 0.9$.

Shrub or small tree 2-7 (-10) m tall. Leaves with petioles 5-15 mm long, eglandular; laminae of larger leaves elliptical or ovate, 6-17 × 3-8 cm, base cuneate to almost rounded, apex rounded to obtuse to acute to acuminate, usually bearing 2 abaxial glands somewhat above base and beside midrib or between it and margin, nearly or quite glabrate at maturity. Pseudoracemes 3-12 cm long, of 10 to 30 (to 40) flowers, axillary or 1 to 3 terminating short lateral shoot with 1 pair of vegetative leaves; peduncle 1-4 (-7) mm long; 1 bracteole (or rarely both) usually bearing large eccentric abaxial gland. Calyx bearing 8 glands; petals yellow, eglandular or glandular-dentate at base or around margin; filaments 1.8-2.5 mm long, 1/3-1/2 connate; anthers with connective yellow or light brown; ovary bicarpellate, glabrous or rarely sparsely sericeous; style (formed by 2 nearly to completely connate) 1.8-2.2 mm long, glabrous, stigmas usually distinct. Fruits orange to red, 9-14 mm long and 9-16 mm in diameter (dried), 2-lobed, depressed-globose or globose to ovoid, glabrous, wall granulate, apparently becoming smooth in some (overripe?) fruits.

GENERAL DISTRIBUTION: Cuba, Hispaniola, Puerto Rico, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Saba!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Wild coffee, bois masse, prune café.

NOTES: Plants of woodlands or forests, in relatively mesophytic to moist places from near sea level to 1000 m. Flowers in all months, but most frequently collected from March to September. This species has long been called *Bunchosia nitida* (Jacq.) DC., but that name was based on a type from Cartagena, Colombia, and the West Indian plant is not known from Colombia. It is therefore inappropriate to use that name for this species. I am adopting the next oldest name, and spelling the epithet as Andrews spelled it. The figure and description in the protologue compare well with the plant from the Lesser Antilles. Andrews said under the generic character "Berry . . . with three large bony seeds," which would not fit our bicarpellate species, but the specific character and plate do not describe or illustrate fruits and he apparently did not section the ovary, so there is no reason to believe that his type was tricarpellate. In fact, there is some evidence that it really was bicarpellate. In the second edition of *Hortus kewensis*, vol. 3 p. 103, 1811, Robert Brown described *Malpighia polystachia* Andrews as having a bilobed stigma, which implies two carpels. Brown's description seems to have been original, based on a living plant at Kew obtained from A. B. Lambert, who also sent Andrews his specimen. Andrews believed the plant to have originated in Trinidad, but no such plant is known from Trinidad (Fl. Trin. Tob. 1: 144. 1928), so it seems more likely that Lord Seaforth actually obtained it from somewhere in the Lesser Antilles, perhaps from Barbados where he was governor.

Bunchosia media is listed provisionally as a probable synonym. In the protologue, Brown described the stigma as bilobed, which implies that the type was bicarpellate. If so, it is very probable that this name applies to the Lesser Antillean species, not to the tricarpellate species of Jamaica, which is properly

called *B. swartziana* Griseb.

Bunchosia polystachia is quite variable in size of leaves and presence or absence of glands on the petals, and a few plants have the ovary sparsely sericeous, but differences from the common condition are not correlated from one population to another.

BYRSONIMA Kunth

Byrsonima Rich. ex Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 147 (quarto ed.). 1821 [1822].

Trees, shrubs, or subshrubs. Stipules intra- and epipetiole, distinct or partially to completely connate. Leaves eglandular. Inflorescence a terminal raceme of few-flowered cincinni or a pseudoraceme (i.e., a raceme of 1-flowered cincinni); floriferous bracts and bracteoles eglandular; pedicels sessile or sometimes raised on short peduncle. Sepals all biglandular or all eglandular, connate as far as tips of glands, glands green, yellow, white, or pink; petals yellow, white, pink, or red (rarely "purple"), usually glabrous, lateral 4 with slender, recurved claws, anterior pair with deeply cupshaped limbs, posterior pair shallower; posterior petal with stout, erect claw and limb smaller, flat or crumpled and often reflexed; stamens 10, anthers more or less alike; ovary with 3 completely connate carpels, 3-locular, all locules fertile or anterior sterile in some species; styles 3, slender and subulate, stigmas minute and apical or slightly internal. Fruit a drupe, thin flesh green turning yellow, orange, red, purple, blue, or blue-black at maturity; stone with hard wall, trilocular.

LECTOTYPE SPECIES: *Byrsonima coccolobifolia* Kunth.

A genus of at least 150 species, all American, mostly South American.

KEY TO THE SPECIES

1. Petals white or pink, often turning reddish in age.
 2. Laminae of larger leaves 0.9-1.9 (-2.4) cm wide; inflorescences 2.5-5 cm long, containing 6 to 10 (to 16) flowers; anthers with locules rounded at apex and connective equaling locules or exceeding them by up to 0.3 mm; fruit yellow at maturity *B. lucida*
 2. Laminae of larger leaves (2.5-) 3-6 (-7) cm wide; inflorescences (3-) 5-17 cm long, containing (15 to) 20 to 50 flowers; anthers with locules apiculate at apex and connective exceeding locules by 0.6-1.4 mm; fruit red at maturity ... *B. trinitensis*
1. Petals yellow.
 3. Posterior petal with 2 or more glands at apex of claw or base of limb; leaves tightly sericeous to glabrate, hairs sessile, straight, appressed; anthers sericeous, especially between locules, with straight appressed hairs; laminae with 15 to 20 or more fine lateral veins on each side *B. spicata*
 3. Posterior petal eglandular; leaves tomentose to glabrate, hairs loose, sinuous to strongly twisted; anthers glabrous or tomentose, hairs loose and spreading; laminae with 7 to 12 principal lateral veins on each side *B. crassifolia*

Byrsonima crassifolia (L.) Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 149 (quarto ed.). 1821 [1822].

Basionym: *Malpighia crassifolia* L., Sp. Pl. 1: 426. 1753.

Type: Linnaean Herbarium, genus 588 sheet 8 in Savage's Catalogue.

Syn.: *Malpighia coriacea* Sw., Prodr. 74. 1788. (Type: Jamaica.)

Byrsonima coriacea (Sw.) DC., Prodr. 1: 580. 1824.

Byrsonima berteriana A.D. Juss., Ann. Sci. Nat. Bot. sér. 2, 13: 333. 1840. (Type: Jamaica, Bertero (P-JU!).)

Byrsonima cubensis A.D. Juss., Ann. Sci. Nat. Bot. sér. 2, 13: 333. 1840. (Type: Cuba, Poeppig (P!).)

Byrsonima tenuifolia Urban & Niedenzu, Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 1: 19. 1901. (Type: Hispaniola, Picarda 536.)

Shrub or small tree (0.8-) 1-7 (-10) m tall. Stipules 2-3 (-4) mm long, connate. Leaves with petioles 8-15 (-23) mm long, tomentose to glabrate; laminae of larger leaves elliptical or broadly elliptical or somewhat obovate or suborbicular, 6.5-13 (-19) × 3-8 cm, base cuneate or attenuate, apex usually abruptly short-acuminate, occasionally obtuse or rounded, densely tomentose to glabrate on both sides, hairs rather loose, sinuous to strongly twisted; principal lateral veins mostly 7 to 12 on each side. Inflorescences 7-15 (-23) cm long, containing 20 to 50 or more flowers; bracts 1-5 mm long, appressed or spreading but not revolute, usually deciduous before maturity of fruit, often much earlier; pedicels weakly to strongly circinate in bud, decurved in fruit. Sepals all biglandular; petals yellow, all eglandular; anthers with locules occasionally glabrous, more commonly pilose with few to many spreading hairs on both sides, connective equaling locules or slightly exceeding them; ovary glabrous or sparsely to densely tomentose-sericeous. Fruits yellow at maturity, 8-10 mm in diameter (dried), globose or depressed-globose, glabrous or sparsely tomentose to glabrate.

GENERAL DISTRIBUTION: West Indies, Mexico and Central America, and much of tropical South America.

DISTRIBUTION IN LESSER ANTILLES: Barbados!.

NOTES: The only two collections seen from Barbados bear no notes on habitat; they were collected in Dodds and St. John, Villa Nova. In most of its range the species grows in open savannas with small trees, where it is often one of the important woody species. It flowers and fruits in all months.

This is an exceedingly variable species. The more I study it the broader my concept of it becomes. In Central America many forms coexist and intergrade. In the West Indies there is one extreme that resembles the plants in Venezuela. It has thick, broad, rather rounded leaves with the leaf reticulum dense and prominent and the leaf hairs twisted and rather long-persistent, long bracts, and usually numerous twisted anther hairs. The other extreme has thinner, more tapered leaves with a less prominent reticulum and straighter hairs that fall sooner, shorter bracts, and few anther hairs. These plants have traditionally been called *Byrsonima coriacea*. The plant in Barbados resembles the latter, and if one were going to recognize *B. coriacea*, that would be the correct name to use in this Flora. However, I cannot defend doing that. I suspect that the present populations in the West Indies are derived from immigrants that came at different times from South America and Central America and represented

different morphological extremes, but they seem to be crossing in the West Indies, and at this time I see no satisfactory way to separate them.

Byrsonima lucida (Miller) DC., Prodr. 1: 580. 1824.

Basionym: *Malpighia lucida* Miller, Gard. Dict. ed. 8. 1768.

Type: Cuba, *Houstoun* (BM!).

Syn.: *Malpighia cuneata* Turcz., Bull. Soc. Imp. Naturalistes Moscou 31: 390. 1858.

(Type: Cuba, *Linden* 1968.)

Byrsonima cuneata (Turcz.) P. Wilson, Bull. New York Bot. Gard. 8: 394. 1917.

Shrub or small tree 1-6 m tall. Stipules 0.7-1.5 mm long, connate or distinct just at apex. Leaves often clustered at tips of shoots; petioles 1-5 mm long, sericeous to glabrate; laminae of larger leaves obovate, 20-40 × 9-19 (-24) mm, base cuneate or gradually narrowed, apex rounded or obtuse, very sparsely sericeous to soon glabrate. Inflorescences 2.5-5 cm long, containing 6 to 10 (to 16) flowers; bracts 1.5-3 mm long, appressed or spreading, not revolute, bracts and bracteoles persistent past anthesis, but deciduous before maturity of fruit; pedicels straight in bud, straight to somewhat decurved in fruit. Sepals all biglandular; petals white or pink, turning red in age; anthers glabrous, locules rounded at apex, connective equaling locules or exceeding them by up to 0.3 mm; ovary glabrous. Fruits yellow at maturity, 8-12 mm in diameter (dried), ovoid to spheroidal with short apical beak when immature, glabrous.

GENERAL DISTRIBUTION: Florida, Bahamas, Greater Antilles, Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Barbuda!, Antigua!, Guadeloupe!, La Désirade!, Marie Galante!, Dominica!, Barbados!.

COMMON NAMES: Clam cherry, gooseberry, olivier.

NOTES: Members of this species grow from sea level to 150 m (occasionally higher in Greater Antilles); they are common in xerophytic associations near coasts, especially coppices on thin soil over limestone, but also in sandy areas back of beach. Flowering and fruiting occur from November to July, perhaps in all months. This species seems to hybridize with *B. spicata* in Dominica; see discussion under the latter species.

Byrsonima spicata (Cav.) DC., Prodr. 1: 580. 1824.

Basionym: *Malpighia spicata* Cav., Diss. 8: 409, pl. 237. 1789.

Type: Santo Domingo, *Jos. Jussieu* (P-JU!).

Syn.: *Byrsonima guadalupensis* Don, Gen. Hist. 1: 637. 1831. (Type: Guadeloupe, not located.)

Byrsonima coriacea var. *spicata* (Cav.) Niedenzu in Engl., Pflanzenr. IV. 141: 700. 1928.

Tree 3-25 m tall. Stipules 1-3 mm long, connate. Leaves with petioles 5-12 (-15) mm long, sericeous; laminae of larger leaves elliptical, 6.5-13 (-14.5) × 1.7-4.5 (-5.5) cm, base acute or attenuate, apex acute or acuminate, sericeous on both sides at first, at maturity more or less glabrate above, tightly sericeous to glabrate below, hairs straight, sessile, appressed, lateral veins 15 to 20 or more pairs, fine, parallel. Inflorescences 4-12 cm long, containing (15 to) 25 to 50

flowers; bracts 1-2.5 mm long, spreading to revolute, deciduous before maturity of fruit; pedicels circinate in very young buds, decurved or nearly straight in fruit. Sepals all biglandular, glands yellow; petals yellow, posterior petal bearing 2 or more glands at apex of claw or on base of limb; anthers sericeous, at least between locules, with straight appressed hairs, locules rounded at apex, connective equaling locules or slightly exceeding them; ovary sericeous or (rarely) glabrous. Fruits yellow-orange at maturity, 10-12 mm in diameter (dried), depressed-globose, glabrous or sericeous to glabrate.

GENERAL DISTRIBUTION: Greater Antilles except Jamaica; northern South America, south to Bolivia.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Saba!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Barbados.

COMMON NAMES: Bois tan, shoemaker's bark (both reflecting the use of the bark for tanning leather), bois charbon, mauricypre.

NOTES: Growing from near sea level to 630 m, in a variety of associations from dry scrubland to rain forest. Flowering and fruiting in all months. A tree from the Grande Savane of Dominica (Stern & Wasshausen 2444, US) is superficially similar to *Byrsonima trinitensis*, but lacks the characteristic anthers and white to pink petals of that species, which grows in wetter places. Dan Nicolson has suggested, in his manuscript for the Flora of Dominica, that this plant resulted from hybridization between *B. lucida*, which is common in the Grande Savane, and *B. spicata*, which is widespread in Dominica. I believe that he is probably correct. The leaves of 2444 are intermediate in size and shape between those of the putative parents, although closer in size to those of *B. spicata*. The bracts are rather long, as in *B. spicata*, but stiff, as in *B. lucida*. The inflorescence is longer and contains more flowers than that of *B. lucida*, and the petals were described as yellow-orange, as in *B. spicata*. The connective of the anthers just equals the locules, and the locules are rounded at the apex, characteristics of both *B. lucida* and *B. spicata*; there are a few hairs between the locules, as in *B. spicata*. Most of the pollen grains of Stern & Wasshausen 2444 lack stainable contents, so it was probably a sterile F₁ hybrid with no prospect of perpetuation. The parents are not closely related within the genus.

Byrsonima trinitensis Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, 13: 334. 1840.

FIGURE 236a-g.

Type: Martinique (see discussion below), Sieber 51 (K!, M, MO!, NY!, P!).

Syn.: *Byrsonima martinicensis* Krug & Urban ex Duss, Ann. Inst. Bot.-Géol. Colon. Marseille 3: 111. 1897. (Type: Martinique, Duss 593 (A!, NY!).)

Byrsonima martinicensis var. *vincentiensis* Urban & Niedenzu, Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 1: 41. 1901. (Syntypes: St. Vincent, Smith 481, Smith 609, Eggers 6744.)

Tree 4-30 m tall, rarely shrubby and only 2-3 m tall. Stipules 1.3-2.7 mm long, connate. Leaves with petioles 3-12 mm long, sericeous to glabrate; laminae of larger leaves elliptical or obovate to nearly orbicular when short, (2.5-) 3-13 (-15) × 3-6 (-7) cm, base cuneate or truncate, apex usually rounded or obtuse,

occasionally some acute, originally sericeous but soon nearly or quite glabrate. Inflorescences (3-) 5-17 cm long, containing (15 to) 20 to 50 flowers; bracts and bracteoles 0.5-1 mm long, straight, persistent past flowering, persistent or deciduous in fruit; pedicels appressed-sericeous, circinate in bud, strongly decurved or twisted in fruit. Sepals all biglandular, glands white; petals white to pink, probably turning reddish in age; anthers glabrous or sparsely sericeous, locules drawn out at apex into short, slender, sterile projections (these often abraded), connective exceeding locules by 0.6-1.4 mm, extension straight or recurved; ovary glabrous or sericeous at apex. Fruits red at maturity, 8-11 mm in diameter (dried), ovoid, usually with distinct apical beak, glabrous or sericeous at apex, subtended by enlarged calyx.

GENERAL DISTRIBUTION: Endemic to the Lesser Antilles (see discussion below).

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Bois tan, bois tan montagne, bois tan rouge, mauricif, mauricypre.

NOTES: Growing from 100 to 1200 m, mostly 300 m or higher, mostly rain forests but occasionally found in woodlands or savannas. Flowering from April to December, fruiting from November to July. The name of this species is unfortunate, because it does not occur on Trinidad. The type is surely one of the several collections made by Sieber in Martinique and later distributed with the printed "FL. TRINITATIS" label used for the plants he did get on Trinidad (R. A. Howard, pers. comm.). A similar but easily distinguished plant is known from Mt. Tucuche on Trinidad, and that has often been called *B. trinitensis*. It differs from the plant of the Lesser Antilles in several characters, most notably its short, loosely reddish-tomentose pedicel that is quite straight in bud and fruit and its filaments bearing many long spreading hairs at least halfway up the inner face. The plant on Trinidad seems to be conspecific with *B. kariniana* W. Anderson; plants essentially identical to those of Trinidad have been collected in northeastern Venezuela.

Byrsonima trinitensis is probably endemic to the Lesser Antilles. Adams used the name for a pink-flowered species in his Flowering Plants of Jamaica, but he did not describe the all-important anthers and may not have appreciated how similar quite separable species of *Byrsonima* can be. If the plants of Jamaica have anthers with the connective equaling the locules, as described by Niedenzu for *B. glaberrima* Niedenzu and *B. bracteata* Fawcett & Rendle, they are certainly not *B. trinitensis*. It is also worth noting that the only report of this species from Antigua is *Duss 44* in 1902 (NY!); that record should be confirmed by recollection. The species most similar to *B. trinitensis* is the Venezuelan one currently known by the later homonym *B. reticulata* Klotzsch & Karsten ex Grisebach, which I shall replace with a new name in the near future.

The leaves of the plants treated here as *Byrsonima trinitensis* are variable in size, shape, and hairiness, but intermediates are common and I can see no justification for recognizing the large-leaved extreme as *B. martinicensis*.

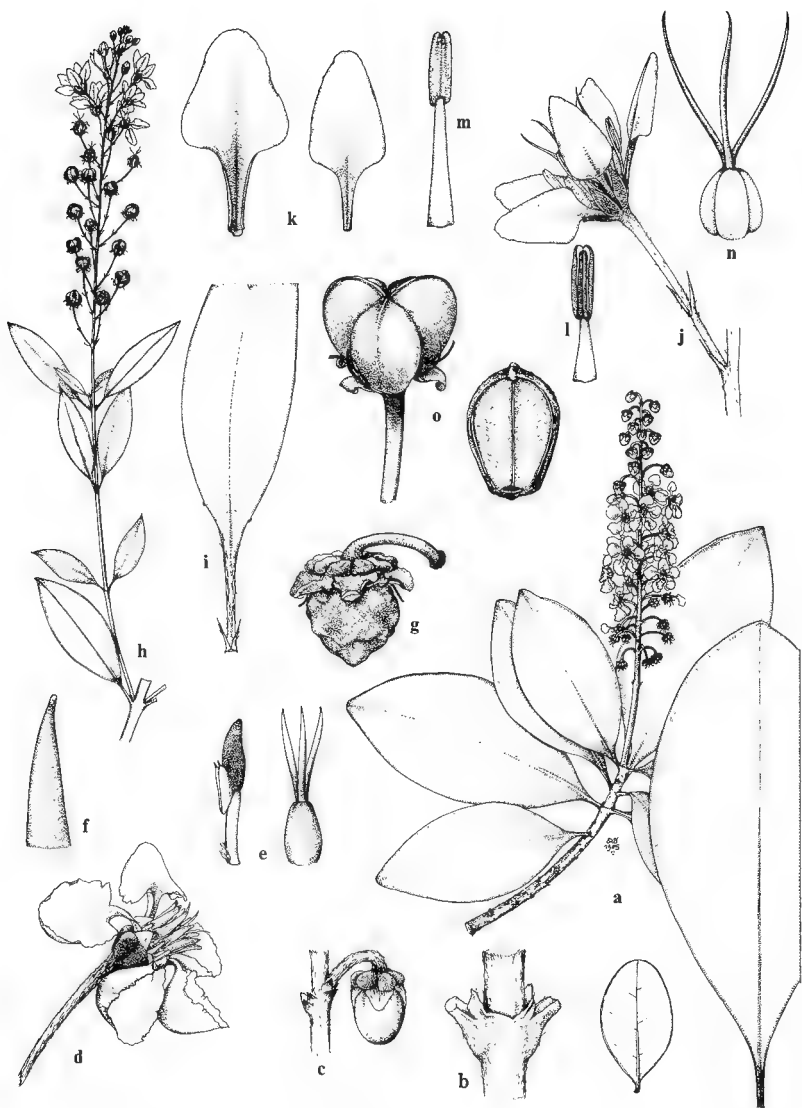


FIGURE 236. a-g, *Byrsonima trinitensis*: a, flowering branch, and large and small leaves from other collections, $\times 0.45$; b, stipules, $\times 2.3$; c, flower bud, $\times 2.3$; d, flower, $\times 2.3$; e, stamen and gynoecium, $\times 4.5$; f, apex of style, $\times 23$; g, dried fruit, $\times 1.4$. h-o, *Galphimia gracilis*: h, flowering branch, $\times 0.45$; i, base of leaf and stipules, $\times 2.3$; j, flower, side view, $\times 2.3$; k, posterior petal (left) and lateral petal, $\times 3$; l, stamen from opposite a petal, adaxial view, $\times 4.5$; m, stamen from opposite a sepal, abaxial view, $\times 4.5$; n, gynoecium, $\times 4.5$; o, intact fruit (left, $\times 3$) and adaxial view of one coccus, $\times 4.5$.

EXCLUDED SPECIES

Byrsonima coccolobifolia Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 148 (quarto ed.). 1821 [1822].

In Das Pflanzenreich, Niedenzu cited two collections of this species as possibly originating in Guadeloupe. I have seen no collections of this very distinctive species from the Lesser Antilles, and am reasonably confident that it does not occur there.

Byrsonima laevigata (Poir.) DC., Prodr. 1: 580. 1824.

Niedenzu cited a Perrottet collection from Guadeloupe under this name in Das Pflanzenreich, and Duss cited his 3675 from Guadeloupe as *B. laevigata* in his Flore Phanérogamique. The Duss collection (NY!) is a large-leaved specimen of *B. trinitensis*, and I assume the Perrottet collection is the same species. *Byrsonima laevigata* is easily distinguished from *B. trinitensis* on the basis of its anther locules, which are densely sericeous and have long apical extensions; it is known only from South America, from Suriname south to Bahia.

GALPHIMIA Cav.

Galphimia Cav., Icon. 5: 61. 1799.

Syn.: *Thryallis* L., Sp. Pl. ed. 2: 554. 1762, not *Thryallis* C. Martius, Nov. Gen. Sp. Pl. 3: 77. 1829, nom. cons. (Type of *Thryallis* L.: *T. brasiliensis* L.)

Subshrubs, shrubs, or occasionally small trees. Stipules intrapetiolar, distinct. Leaves usually bearing glands. Inflorescence a terminal pseudoraceme or panicle; floriferous bract and bracteoles eglandular or with tiny glandular areas on margin at base; pedicel raised on well-developed peduncle. Flowers zygomorphic to nearly actinomorphic; calyx eglandular or bearing up to 5 glands; petals yellow or yellow and red, subentire (minutely denticulate); stamens 10, filaments opposite sepals longer than those opposite petals, anthers alike; ovary with 3 carpels completely connate, all fertile; styles 3, slender and subulate with minute apical stigmas. Fruit breaking apart into 3 dry, unwinged, 1-seeded cocci with thin brittle walls, these indehiscent or dorsally dehiscent but probably not releasing the seed.

TYPE SPECIES: *Galphimia glauca* Cav.

A genus of about 11 species occurring principally in Mexico and northern Central America, with one species native to South America and one (*G. gracilis*) cultivated pantropically as an ornamental shrub. For additional information see B. MacBryde, A revision of the *Galphimiinae* Ndz., *Malpighiaceae*, Ph.D. dissertation, Washington University, pp. 110-244, 1970.

Galphimia gracilis Bartling, Linnaea 13: 552. 1839.

FIGURE 236h-o.

Type: Bartling described the species from a cultivated plant and apparently kept no herbarium specimen. MacBryde (cited above) plans to designate as neotype a specimen in the Jussieu Herbarium in Paris.

Syn.: *Thryallis gracilis* (Bartling) Kuntze, Revis. Gen. Pl. 1: 89. 1891.

Shrub 1-3 (-4) m tall. Stipules 1.5-2.5 mm long. Leaves with petioles 5-15 mm long, loosely sericeous to glabrate, eglandular; laminae of larger leaves elliptical or ovate, 2-5 × 1-3 cm, base truncate, cuneate, or gradually narrowed, apex acute, obtuse, or rounded and often apiculate, glands 2, marginal near base, glabrate on both sides or bearing scattered hairs. Sepals usually all eglandular, lanceolate, acute or slightly obtuse at apex; lateral petals with limb lanceolate, apex acute to obtuse, base cuneate or truncate, 2 to 3 times as long as claw; posterior petal strongly differentiated by its longer claw, limb only 1 to 1.4 times as long as claw and decurrent onto it; petals deciduous before fruit reaches maturity; anthers 2-2.8 mm long; ovary glabrous. Cocci 4-5 × 3 mm.

GENERAL DISTRIBUTION: Native to Mexico; cultivated as an ornamental throughout the tropics and subtropics, especially in Latin America and the Caribbean.

DISTRIBUTION IN LESSER ANTILLES: Cultivated; perhaps occasionally escaped from cultivation: Barbuda, Antigua, St. Eustatius, St. Kitts!, Guadeloupe!, Dominica!, Martinique!, Barbados!.

NOTES: This species is often misidentified as *Galphimia glauca* Cav., a common species of Mexico and Central America which is only rarely cultivated. References to *G. glauca* in the horticultural literature should be assumed to refer to *G. gracilis*.

HETEROPTERYS Kunth

Heteropterys Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 163 (quarto ed.). 1821 [1822].

Woody vines, shrubs, or small trees. Stipules very small, free, triangular, borne on or beside base of petiole, or absent. Leaves usually bearing glands. Flowers borne in umbels, corymbs, or pseudoracemes, these single or grouped in racemes or panicles, axillary or terminal. Petals mostly yellow or pink; stamens 10, anthers more or less alike, connective not or hardly exceeding locules; ovary with 3 carpels partially connate, all fertile; styles 3, apex with large stigma usually internal, rarely terminal, dorsally rounded, truncate, acute, or hooked. Fruit breaking apart into 3 samaras, each samara having its largest wing dorsal, thickened on abaxial (lower) edge and (in most species) bent upward, veins terminating in thinner adaxial edge; much shorter winglets or crests present on sides of nut in some species; dorsal wing rudimentary in a few species.

TYPE SPECIES: *Heteropterys purpurea* (L.) Kunth.

A genus of perhaps 125 species, with one in Africa, the rest American, occurring from Mexico and the West Indies to Argentina.

KEY TO THE SPECIES

Petals yellow; sepals revolute at apex; leaves large, laminae to 30 × 14 cm; samaras large, 50-70 mm long, wing 15-30 mm wide, nut 12-20 × 8-15 mm *H. platyptera*

Petals pink; sepals erect or appressed; leaves small, laminae $1.5-5 \times 1-3$ (-4) cm; samaras small, 18-30 mm long, wing 7-11 mm wide, nut $6-8 \times 3-4$ mm *H. purpurea*

Heteropterys platyptera DC., Prodr. 1: 592. 1824.

Type: Guadeloupe (no collector cited; c).

Syn.: *Banisteria longifolia* Sw., Prodr. 75. 1788. (Type: West Indies.)

Banisteria macrocarpa Pers., Syn. Pl. 1: 507. 1805, not *H. macrocarpa* Kralik.

(Type: Martinique, Terrasson (P-JU!).)

Banisteria pubiflora DC., Prodr. 1: 591. 1824. (Syntypes: Puerto Rico, Bertero, and Guadeloupe, L'herminier.)

Heteropterys longifolia (Sw.) Niedenzu, Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 2: 53. 1903, not *H. longifolia* Kunth.

Heteropterys longifolia var. *borealis* Niedenzu, Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 2: 53. 1903. (Lectotype: Dominica, Imray.)

Heteropterys longifolia var. *martinicensis* Niedenzu, Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 2: 54. 1903. (Lectotype: Martinique, Isert in 1787.)

Heteropterys platyptera var. *borealis* (Niedenzu) J. F. Macbr., Candollea 6: 12. 1934.

Heteropterys platyptera var. *martinicensis* (Niedenzu) J. F. Macbr., Candollea 6: 12. 1934.

Woody vine climbing to tops of tall trees, sometimes shrubby. Leaves with petioles 8-16 mm long, glabrate, eglandular, black in dried specimens; laminae of larger leaves ovate or elliptical, $15-30 \times 6-14$ cm, often smaller in inflorescence, base rounded or occasionally slightly cordate, apex acuminate, eglandular or bearing 1 or 2 small glands below near base, glabrate or occasionally thinly sericeous below at maturity. Inflorescence a terminal or axillary panicle, flowers ultimately borne in pseudoracemes 4-18 cm long, containing 10 to 60 flowers; bracts and bracteoles eglandular. Flowers with strong, sweet, lilylike smell; sepals revolute at apex, lateral 4 biglandular, glands 1.5-2.4 mm long; petals yellow, glabrous, dentate, 5-7 mm long including claw 1.5-3.2 mm long; filaments 2.5-3.5 mm long; anthers 0.7-1 mm long, glabrous or each locule with apical tuft of hairs; styles 2.8-3.3 mm long, straight and parallel or posterior 2 somewhat lyrate, apex with stigma distinctly internal and dorsally usually extended into short rounded hook ca. 0.2 mm long. Samaras 50-70 mm long, wing 15-30 mm wide, straight or somewhat bent up or back and sometimes flabellate; nut $12-20 \times 8-15$ mm, without lateral crests or winglets.

GENERAL DISTRIBUTION: Probably endemic to the Lesser Antilles; Niedenzu (Pflanzenreich p. 374) cites one collection from Puerto Rico, which I have not seen.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!.

COMMON NAMES: Liane caco, sec caco.

NOTES: Growing in moist forests or near streams, to 600 m elevation. Flowers from February to August, most commonly from April to June. This species is quite similar to *Heteropterys multiflora* (DC.) Hochr., which is common in

northeastern South America and rare in Colombia, Central America, and Jamaica. The two are usually distinguished on the basis of the samara, which is shorter and more flabellate in *H. multiflora* and has a larger nut. However, as Niedenzu notes (Pflanzenreich p. 374), some plants of the Lesser Antilles have samaras that are somewhat intermediate between the extremes of the two species. From such plants *H. multiflora* differs in having a row of inframarginal glands on the leaves below, larger flowers with longer calyx glands, petals, stamens, and styles, and a longer, dorsiventrally flattened hook on the stigma.

Heteropterys purpurea (L.) Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 164 (quarto ed.). 1821 [1822].

FIGURE 237a-g.

Basionym: *Banisteria purpurea* L., Sp. Pl. 1: 427. 1753.

Type: Unknown; Linnaeus gives only tropical America for the origin, and Savage lists no specimen in the Linnaean Herbarium.

Syn.: *Banisteria parvifolia* Vent., Choix Pl. 51. 1808. (Type: St. Thomas, *Ledru* (p-JU).)

Heteropterys parvifolia (Vent.) DC., Prodr. 1: 591. 1824.

Malpighia elliptica Desv. in Ham., Prodr. Pl. India Occ. 40. 1825. (Type: West Indies, P.)

Woody vine climbing to 10 m, apparently sometimes shrubby. Leaves with petioles 3-10 mm long, mostly biglandular near middle; laminae of larger leaves ovate or elliptical to nearly orbicular, 1.5-5 × 1-3 (-4) cm, base obtuse or rounded, margin often slightly revolute and sometimes bearing 1 to several tiny dark glands, apex obtuse or rounded, often apiculate, and occasionally emarginate, soon glabrate on both sides or sparsely sericeous below. Inflorescence a terminal or axillary pseudoraceme 0.5-4 cm long, (4 to) 6 to 20 flowers sometimes crowded almost into an umbel; bracts and bracteoles eglandular. Sepals erect or appressed, lateral 4 biglandular; petals pink, denticulate or nearly entire, 4.5-5 mm long including claw 1-1.5 mm long; filaments 1.5-3 mm long, longer opposite sepals; anthers 0.9-1 mm long, glabrous; styles 1.8-2.3 mm long, terete, usually straight and parallel or bent slightly distally, more or less equal, apex truncate, stigmas terminal. Samaras 18-30 mm long, wing 7-11 mm wide; nut 6-8 × 3-4 mm, without lateral crests or winglets.

GENERAL DISTRIBUTION: Greater Antilles, Trinidad, Venezuela.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Eustatius!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!, Grenada!, Barbados!.

COMMON NAMES: Aile à ravet, black twist.

NOTES: Plants of dry thickets at low elevations, from sea level to 200 m. Probably flowers in all months (not collected in September or October), but most commonly collected from January to June.

EXCLUDED SPECIES

Heteropterys lindeniana Adr. Juss., Arch. Mus. Hist. Nat. 3: 457. 1843.

This species was reported from St. Vincent by Grisebach in his Flora of the

British West Indies, on the basis of a collection by Guilding. I have seen the specimen, which is at Kew, and it does seem to be *H. lindeniana*. That species is endemic to the Yucatán Peninsula, and is certainly not in the Lesser Antilles now. Guilding's plant was presumably cultivated, perhaps introduced from Belize.

Heteropterys macrostachya Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, **13**: 275. 1840.

In Das Pflanzenreich, Niedenzu cited three collections of this species from St. Vincent, two by Caley and one by "Hooker." Alexander Anderson described and illustrated it under the name *Banisteria chrysophylla* in his 1805 manuscript and stated that he had introduced it from Guiana to the Garden in St. Vincent. That was surely the source of the collections by Caley and "Hooker," and as there are no modern collections of the species from the Lesser Antilles, it has clearly not persisted. Niedenzu also cited a Masson collection from Grenada, but that report was erroneous, based on a mixture. The sheet in question is at Stockholm. It consists of five leaves and a stem plus a packet with several flower buds and one umbel. The leaves and stem are indeed *Heteropterys macrostachya*, but there is no reason to believe they were collected by Masson or originated in Grenada. Written on the sheet is "Ind. Occ. Swartz." The fragments in the packet represent *Hiraea faginea* (Sw.) Niedenzu, and written on the packet is "Malpighia faginea Sw. Ind. Occ.: Ins. Grenada: Masson." Attached to the sheet is a label saying "M. faginea" in Swartz's hand. It seems clear that the packet contains fragments from the type of *Hiraea faginea* at BM, with which they compare perfectly. The leaves represent a different collection from elsewhere, most likely Trinidad, which Swartz misidentified as his *Malpighia faginea*; the resemblance of the leaves in the two species is very strong indeed. These two collections were mounted together, which misled Niedenzu into thinking that the data on the packet applied to the vegetative parts as well.

Heteropterys trigoniifolia Adr. Juss. in St.-Hil., Fl. Bras. Merid. **3**: 33. 1832.

This is a pink-flowered species of central Brazil. Niedenzu cited a Caley collection, which I have not seen, from St. Vincent. The species is certainly not native to St. Vincent, nor growing there now, but perhaps it was cultivated in the St. Vincent Botanic Garden during Caley's tenure as director.

HIRAEA Jacq.

Hiraea Jacq., Select. Stirp. Amer. Hist. 137. 1763.

Woody vines, occasionally shrubby. Stipules usually borne on petiole, most often at or above middle, usually long and subulate. Leaves usually bearing glands, tertiary nerves often strongly parallel. Inflorescences axillary, usually 1 to several umbels of 4 or many flowers; pedicels usually sessile. Petals yellow; stamens 10, anthers more or less alike; ovary with 3 carpels nearly free, all fertile; styles 3, inserted low on ventral face of carpels, apex with internal stigma

and dorsally rounded to prominently hooked. Fruits breaking apart into 3 samaras, each samara having its largest wings lateral, usually 2 discrete wings, the samara then butterfly-shaped; dorsal wing small, sometimes reduced to crest or lost; intermediate winglets or slender projections rarely present.

TYPE SPECIES: *Hiraea reclinata* Jacq.

A genus of at least 55 species, occurring throughout the neotropics but most diverse in northern South America.

***Hiraea faginea* (Sw.) Niedenzu, De genere *Hiraea*, 16. 1906. FIGURE 238a-e.**

Basionym: *Malpighia faginea* Sw., Prodr. 74. 1788.

Type: Grenada, Masson (BM!).

Syn.: *Hiraea chrysophylla* A.Dr. Juss., Ann. Sci. Nat. Bot. sér. 2, 13: 258. 1840. (Syntypes: Northern Brazil (P!, P-JU!); Rio Negro, *Martius* (P-JU!).)

Hiraea swartziana A.Dr. Juss., Ann. Sci. Nat. Bot. sér. 2, 13: 258. 1840, nom. superfl.

Stipules 2.5-5 mm long, borne between middle and apex of petiole. Leaves with petioles 5-9 (-11) mm long; laminae of larger leaves obovate or elliptical, (6-) 8-15 (-18.5) × 3-6 (-7.5) cm, base rounded or subcordate, apex acuminate, margin usually bearing several small glands distally, 2 large glands below at base by or on midrib, glabrate above at maturity or thinly sericeous, especially on midrib, densely and persistently sericeous below, straight appressed hairs giving laminae a golden or silvery-metallic sheen. Inflorescence a short ternate cyme of 3 4-flowered umbels, sometimes reduced to single umbel; bracts and bracteoles eglandular; pedicels sessile. Sepals all eglandular or lateral 4 bearing 8 glands; 4 lateral petals dentate or lacinate, eglandular, posterior petal glandular-fimbriate all around margin; posterior 3 anthers shorter than anterior 7, largest ones often with connective swollen and glandular; posterior 2 styles strongly arcuate, anterior nearly straight, all 3 with short pointed dorsal hook at apex. Samaras with lateral wings 5-15 mm wide and high, trapezoidal or rectangular, entire or lobed or completely divided into 2 as in *Tetrapteryx*, often irregularly reduced; dorsal wing 1.5-5 mm wide; nut 4-6 mm in diameter.

GENERAL DISTRIBUTION: Northern South America, Panama, Costa Rica, Nicaragua, and the Greater Antilles (?).

DISTRIBUTION IN LESSER ANTILLES: St. Lucia, Grenada!

NOTES: Lesser Antillean plants have been collected on river banks. This species is common in northern South America but apparently rare in Grenada, where it has been found only twice since Masson collected the type, once by Eggers in 1889 and once by Broadway in 1905. In addition to the holotype at BM, there are tiny fragments of the type collection at s, mounted with leaves of *Heteropteryx macrostachya*; see discussion above, under "Excluded Species" of *Heteropteryx*.

The report from St. Lucia is based on a specimen cited by Grisebach in his Flora of the British West Indian Islands.

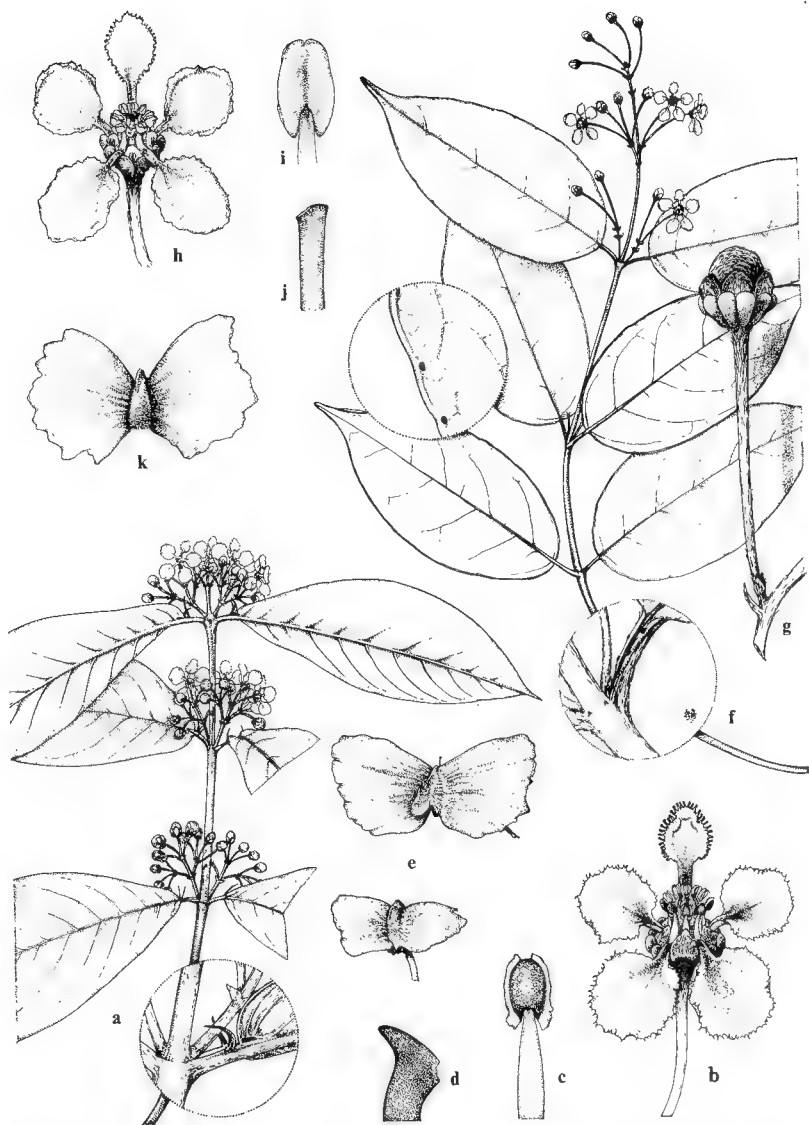


FIGURE 238. a-e. *Hiraeta faginea*: a. flowering branch, $\times 0.45$, with base of leaf enlarged, $\times 1.4$; b. flower, $\times 2.3$; c. anther, abaxial view, $\times 9$; d. apex of style, $\times 18$; e. samaras, abaxial views, \times ca. 1. f-k. *Mascagnia sinemariensis*: f. flowering branch, $\times 0.45$, with petiole and node enlarged, $\times 2.3$, and adaxial margin of lamina enlarged, $\times 4.5$; g. flower bud, $\times 2.7$ h. flower, $\times 2.3$; i. anther, abaxial view, $\times 13.5$; j. apex of style, $\times 13.5$; k. samara, abaxial view, $\times 0.7$.

MALPIGHIA L.

Malpighia L., Sp. Pl. 1: 425. 1753.

Shrubs or small trees. Stipules small, borne on stem between petioles. Leaves with eglandular petioles; laminae usually bearing 2 (to 6) glands below. Inflorescence an axillary simple or ternate pseudoraceme usually (always in our species) congested into a dense corymb or umbel; bracts and bracteoles eglandular; pedicels pedunculate. Petals pink, pale purple, or white; stamens 10, all fertile, glabrous, filaments basally connate, anthers alike or 2 opposite posterior-lateral petals larger; receptacle glabrous on both sides of stamens; ovary with 3 carpels usually completely connate, 3 locules all fertile; styles 3, apex with large internal or subterminal stigma and dorsally rounded, truncate, or hooked. Fruit a fleshy red or orange drupe (or berry), with 3 pyrenes united in center or free at maturity but then usually retained in common fleshy exocarp, hard wall of each pyrene showing rudimentary dorsal and lateral wings and sometimes rudimentary intermediate winglets or dissected outgrowths.

LECTOTYPE SPECIES: *Malpighia glabra* L.

A genus of about 42 species, all native to the American tropics and subtropics, mostly in the West Indies, Mexico, and Central America. For additional information, see J. L. Vivaldi, The systematics of *Malpighia* L. (Malpighiaceae), Cornell University Ph.D. thesis, 1979.

Two of our species, *M. linearis* and *M. martinicensis*, bear long, stiff, needle-like hairs, pointed on both ends, which are easily dislodged and cause discomfort when they enter the skin of the unwary. Collectors often describe these as "stinging" hairs, but that is incorrect. They contain no irritating chemical like that which is injected by the stinging hairs of plants in the Euphorbiaceae and Urticaceae; their effect is entirely mechanical. A third species, *M. coccigera*, has stout modifications of the same hairs borne around the margin of its leaves, and while these are not loose, they too defend the plant against herbivores.

KEY TO THE SPECIES

1. Leaves (some or all) sinuate, each lobe armed with a stiff outward-pointing bristle; laminae to 2.5 cm long, mostly shorter, often nearly as wide as long *M. coccigera*
1. Leaves with margin entire and unarmed (although laminae may bear long needlelike hairs on abaxial surface); laminae of larger leaves usually over 2.5 cm long, always distinctly longer than wide.
 2. Styles diverging only distally if at all, straight, coherent in proximal 1/3-2/3; leaves narrowly elliptical to linear, 5.5 to 13 (to 30) times as long as wide *M. linearis*
 2. Styles diverging from base, at least posterior 2 bowed or twisted, distinct; leaves ovate, elliptical, or obovate, to 3.5 times as long as wide.
 3. Leaves usually bearing persistent or deciduous needlelike hairs 1.5-5 mm long below; laminae usually acute or obtuse at apex; umbel usually raised on stalk 2-12 mm long; posterior styles usually bearing prominent dorsal hook at apex *M. martinicensis*
 3. Leaves soon glabrate or bearing only fine, soft hairs to 0.5 mm long on midrib below; laminae most often obtuse or rounded and often emarginate at apex;

umbel sessile or raised on stalk 1-3 (-5) mm long; posterior styles dorsally square or only slightly hooked at apex *M. emarginata*

***Malpighia coccigera* L., Sp. Pl. 1: 426. 1753.**

Type: Represented by *Pl. 168, Fig. 2* in Plum., *Pl. Amer.*, published by Burman in 1758.

When Linnaeus was in Holland he studied the copies of 508 of Plumier's original plates made in Paris for Boerhaave (Stafleu & Cowan, *Tax. Lit.* 4: 301. 1983). Linnaeus surely based his phrase-name for this species on that drawing, so the copy Linnaeus saw, now in the Groningen University Library, should be considered the type. Plumier probably drew the original plate in Martinique.

Syn.: *Malpighia coccigera* var. *microphylla* Niedenzu, *De genere Malpighia*, 19. 1899. (Type: Vivaldi (p. 448) intends to designate as lectotype *Smith & Smith 1725* from St. Vincent (GH!, K, NY).)

Low shrub to 1 m tall; branches elongated and often prostrate. Leaves with petioles 0-1.5 mm long; laminae of larger leaves orbicular or broadly elliptical or somewhat obovate, 0.6-2.5 × 0.4-2.4 cm, 1 to 1.5 times as long as wide, base rounded, margin of some or all deeply sinuate, each lobe armed with stout, stiff, outward-pointing, bristlelike hair, apex rounded, soon glabrate except for bristles, coriaceous with veins prominent above. Flowers borne singly or in sessile axillary pairs. Calyx bearing 6 to 10 glands, usually 6 large lateral and posterior glands and 2 to 4 smaller anterior glands; petals pink or lilac (or white?); 2 stamens opposite posterior-lateral petals with much longer, thicker filaments and larger anthers than other 8; styles distinct, diverging from base, anterior short, slender, straight, posterior 2 much longer and thicker, strongly bowed, all with interior stigma and at least posterior 2 bearing more or less prominent dorsal hook at apex. Fruits red, 5-15 mm in diameter (fide Vivaldi).

GENERAL DISTRIBUTION: Cuba, Hispaniola, and Puerto Rico; widely cultivated in warm regions and in greenhouses.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe, Dominica!, Martinique!, St. Lucia!, St. Vincent!, the Grenadines!.

NOTES: Found on exposed rocks and in dry thickets and scrub forests from sea level to 310 m. Flowering in Puerto Rico throughout the year; phenology in the Lesser Antilles very poorly known, but collected with flowers from March to May and in November. Vivaldi recognizes three subspecies of *Malpighia coccigera*, of which ours is ssp. *coccigera*. It is native only in Puerto Rico and the Lesser Antilles. The description given above applies only to that subspecies. The other two subspecies occur in Cuba and Hispaniola.

Vivaldi suggests (p. 449) that the plants in the Lesser Antilles have all escaped from cultivation, but he gives no reason for that belief and the label data of the specimens I have seen do not support the idea.

***Malpighia emarginata* DC., Prodr. 1: 578. 1824.**

Type: *Sessé & Mocino pl. 6331. 1406* (Hunt Institute, holotype; G, F neg. 30546).

Syn.: *Malpighia lanceolata* Griseb., *Abh. Königl. Ges. Wiss. Gött.* 7: 185. 1857. (Type: Guadeloupe, *Duchassaing 5* (GOET).)

Shrub or small tree 2-6 m tall; much branched with stiff branchlets. Leaves sometimes crowded in dense shoots with very short internodes, same plants also bearing stems with well-developed internodes; petioles (1-) 2-4 mm long; laminae of larger leaves ovate, elliptical, or obovate, 2.5-7 × 1.4-3.3 cm (to 10 × 5 cm in cultivated plants), to 2.5 times as long as wide, base cuneate or rounded, margin entire and unarmed, apex most often obtuse or rounded and often emarginate and apiculate but sometimes acute and rarely slightly acuminate, soon glabrate or bearing only sparse, fine, soft hairs to 0.5 mm long on abaxial midrib. Umbels sessile or raised on stalk 1-3 (-5) mm long and comprising 2 to 4 flowers. Calyx bearing 6 to 10 glands; petals pink or purplish (in age?); 2 stamens opposite posterior-lateral petals with thicker filaments and larger anthers than other 8; styles distinct, diverging from base, anterior shorter, slenderer, more or less straight and leaning outward, posterior 2 longer and thicker, bowed outward at base and then more or less ascending, all truncate at apex with an interior stigma and dorsally square or slightly hooked. Fruits red, to 22 mm wide, 17 mm high, edible.

GENERAL DISTRIBUTION: From Mexico through Central America and the West Indies to northern South America; widely cultivated for the edible fruit, and readily naturalized through dispersal by fruit-eating birds.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, Antigua, Guadeloupe!, La Désirade!, Marie Galante!, Les Saintes!, Dominica!, Martinique!, St. Lucia!, the Grenadines!, Barbados.

COMMON NAMES: Acerola, Barbados cherry, cerise de Cayenne, West Indian cherry.

NOTES: Plants of dry lowland areas, especially thorn-scrub, roadsides, and fencerows. Flowering and fruiting from March to July. Vivaldi (p. 257) suggests that this species is probably native in the Mayan region; he believes it unlikely to be indigenous in the Lesser Antilles. It has long been known as *Malpighia puniceifolia* L., but Vivaldi states (p. 152) that he has studied the type of *M. puniceifolia* and it is actually a specimen of *M. glabra* L.

***Malpighia linearis* Jacq., Enum. Syst. Pl. 21. 1760.**

Type: None is known; type locality was St. Martin; Vivaldi argues (p. 198) that Jussieu effectively chose as neotype a specimen from Guadeloupe (P-JU 11.460!).

Syn.: *Malpighia angustifolia* var. *oblongata* Niedenzu, De genere *Malpighia*, 9. 1899. (Type: Vivaldi (p. 199) intends to designate as lectotype *Wulfschlägel* 75 from Antigua (GOET, M).)

Malpighia angustifolia var. *linearis* (Jacq.) Niedenzu, De genere *Malpighia*, 9. 1899.

Shrub or small tree 1-5 m tall. Leaves with petioles 1-4 (-6) mm long; laminae of larger leaves narrowly elliptical to linear, 4-11.5 (-15) × (0.3-) 0.5-1.5 cm, 5.5 to 13 (to 30) times as long as wide, base cuneate, margin entire and unarmed and often somewhat revolute, apex very gradually tapered, acute, obtuse, or sometimes rounded, thinly sericeous to glabrate above, thickly to thinly covered below with stiff, straight, appressed, needlelike hairs 2-6 mm long, these per-

sistent or eventually deciduous. Umbels raised on stalk 5-25 mm long and comprising 2 to 6 flowers; inflorescences rarely ternate. Calyx bearing 6 glands on lateral sepals; petals pink; stamens subequal; styles straight, diverging only distally if at all, coherent in proximal 1/3-2/3, all with internal stigma, anterior notably shorter and somewhat slenderer than posterior 2 and dorsally truncate at apex, posterior 2 dorsally truncate or bearing short hook at apex. Fruits red, 7-9 mm in diameter (dried).

GENERAL DISTRIBUTION: Puerto Rico and the Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Kitts!, Nevis!, Montserrat!, Guadeloupe!, La Désirade!, Les Saintes!, Martinique!, St. Lucia.

COMMON NAMES: Bois royal, cerisier, cow-itch bush.

NOTES: Collected in beach scrub and xerophytic thickets to 300 m, in flower from April to October, in fruit in June, August, October, January, and February. Vivaldi (pp. 198 and 207) treats as a synonym of *Malpighia linearis* the name *M. angustifolia* L. (Sp. Pl. ed. 2: 610. 1762). It is true that Linnaeus' name is superfluous because he cited Jacquin's publication and used his phrase-name, slightly modified, but the type of the Linnaean name is probably best considered the Browne specimen in LINN from Jamaica, which represents another species, and since the type governs the application of a name, Linnaeus' name cannot be considered a taxonomic synonym of Jacquin's.

Several collections have leaves that are intermediate between the narrow ones of *M. linearis* and the broader ones of *M. martinicensis*. These plants may have originated through natural hybridization between those species. The collections are: St. Barthélemy, *Le Gallo 271*, *Questel 775*; Guadeloupe, *INRA-CRAAG H-562 & H-2155*; Les Saintes, *Duss 2888*; Marie Galante, *Stehlé 198*. Of these six, two (*Duss 2888* and *Le Gallo 271*) have a gynoeceum that is also intermediate, the styles separate to the base and slightly bowed outward; one (*Questel 775*) is sterile; and the other three have styles like those of *M. linearis*. Study of natural populations is needed to resolve the status of all these intermediates. Note that *Duss 2888* is the collection that Vivaldi (p. 251) proposes to designate lectotype of *Malpighia puniceifolia* var. *lanceifolia* Niedenzu (De genere *Malpighia*, 8. 1899). Vivaldi has annotated the sheets of *2888* at NY and US as *M. emarginata*, but that identification seems questionable, given the shape of the leaves and their needlelike hairs.

***Malpighia martinicensis* Jacq., Enum. Syst. Pl. 21. 1760. FIGURE 235g-m.**

Type: None is known; type locality was Martinique; Vivaldi (p. 301) intends to designate as neotype a *Bertero* collection from Guadeloupe (M, not seen).

Syn.: *Malpighia martinicensis* var. *jussieuana* Niedenzu, De genere *Malpighia*, 13. 1899. (Type: Vivaldi (p. 302) intends to designate as lectotype the *Bertero* collection at M that will also be the neotype of the specific epithet.)

Shrub or small tree 1-8 m tall. Leaves seldom crowded in short dense lateral shoots; petioles 2-5 (-7) mm long; laminae of larger leaves elliptical or slightly ovate, 4-9 (-11.5) × 1.6-4 (-6.2) cm, 1.8 to 3 (to 3.5) times as long as wide, base

cuneate, margin entire and unarmed, apex usually acute or obtuse but sometimes rounded, usually bearing stiff, straight, appressed, needlelike hairs 1.5-5 mm long below, these deciduous or persistent and prominent on older leaves. Umbels rarely sessile, usually raised on stalk 2-12 mm long and comprising (2 or) 3 or 4 (or 5) flowers. Calyx bearing 6 glands on lateral sepals; petals white (*Proctor 21064*) or pink (*Box 1135*); 2 stamens opposite posterior-lateral petals with thicker filaments and larger anthers than other 8; styles distinct, diverging from base, posterior 2 longer and thicker than anterior, bowed or eventually twisted, all with interior stigma and at least posterior 2 bearing more or less prominent dorsal hook at apex. Fruits red, 15 mm wide, 13 mm high, edible.

GENERAL DISTRIBUTION: Endemic to Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: St. Barts!, Antigua!, Guadeloupe!, Marie Galante!, Martinique!, St. Vincent!.

COMMON NAMES: Cerise capitaine, cerise du pays.

NOTES: Plants of xerophytic woodlands near the sea. Collected in flower in May, June, and October, in fruit in December. This species seems to hybridize with *Malpighia linearis*; see discussion under that species.

MASCAGNIA Bertero

Mascagnia Bertero *in* Colla, Hortus Ripul. 86. 1824.

Vines, mostly woody. Stipules small, free, triangular, borne between petioles or on base of petiole. Leaves usually bearing glands. Inflorescences mostly axillary or terminal pseudoracemes, sometimes congested and reduced to form corymbs or umbels, single or grouped in panicles; floriferous peduncles usually well developed. Petals yellow, pink, lilac, or white; stamens 10, anthers more or less alike; ovary with 3 carpels connate along central axis, all fertile; styles 3, apex with large internal stigma and dorsally rounded, truncate, acute, or short-hooked. Fruits breaking apart into 3 samaras, each samara having largest wings lateral, 2 discrete wings or a single wing continuous at base or at both base and apex; dorsal wing small, sometimes reduced to a crest or lost; intermediate winglets present or absent; wings reduced or rudimentary in a few species.

TYPE SPECIES: *Mascagnia macradena* (DC.) Niedenzu (*Mascagnia americana* Bertero).

A diverse and probably unnatural genus of about 55 species, occurring from Mexico and the West Indies to Argentina.

Mascagnia sinemariensis (Aublet) Griseb. *in* C. Martius, Fl. Bras. 12(1): 93. 1858.

FIGURE 238f-k.

Basionym: *Banisteria sinemariensis* Aublet, Hist. Pl. Guian. 1: 462, pl. 185. 1775.

Holotype: French Guiana, Aublet (BM!).

Syn.: *Malpighia volubilis* Sims, Bot. Mag. 21: 809. 1805. (Type: cultivated, from "West Indies" (K!).)

Byrsonima volubilis (Sims) DC., Prodr. 1: 581. 1824.

Hiraea simsiana Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, 13: 259. 1840, nom. superfl.

Mascagnia simsiana (Adr. Juss.) Griseb., Fl. Brit. W. Indian Is. 121. 1859.

Hiraea schizoptera Turcz., Bull. Soc. Imp. Naturalistes Moscou 36(1): 584. 1863.

(Type: St. Vincent, Caley.)

Mascagnia volubilis (Sims) Niedenzu, Arbeiten Bot. Inst. Königl. Lyceums Hosianum Braunsberg 3: 22. 1908.

Mascagnia schizoptera (Turcz.) Cuatrec., Webbia 13: 373. 1958.

Woody vine. Stipules interpetiolar. Leaves with petioles 8-13 mm long, eglandular or bearing 2 (to 4) small glands on distal half; laminae of larger leaves ovate or elliptical, 7-13 (-16) × 3-7 (-8) cm, base cuneate or rounded, margin usually slightly revolute, apex acuminate, thinly sericeous to glabrate, bearing many tiny impressed glands on adaxial surface of revolute margin. Inflorescence a congested axillary (and sometimes terminal) panicle shorter than subtending leaf, flowers mostly borne in corymbose clusters of 4 to 8 or more; bracts and bracteoles eglandular; pedicels 10-22 mm long, borne on peduncles 1-3 (-5) mm long. Sepals leaving outer petal exposed during enlargement of bud, lateral 4 or all 5 biglandular; petals yellow, densely sericeous abaxially, lateral 4 erose or dentate, eglandular, posterior petal glandular-fimbriate proximally or all around margin; styles equal, straight and erect or divergent, apex dorsally rounded or truncate or very shortly apiculate, with internal stigmas sometimes appearing nearly terminal, especially in older flowers. Samaras with 2 lateral wings discrete, thin or somewhat coriaceous, 10-23 mm wide, 22-32 mm high, erose or coarsely toothed or rarely lacerate; dorsal wing 1-7 mm wide or little more than a ridge, entire or coarsely toothed; nut 3.5-6 mm in diameter.

GENERAL DISTRIBUTION: Brazil (northeastern Pará), French Guiana, Venezuela, Trinidad and Tobago, Colombia, and Peru.

DISTRIBUTION IN LESSER ANTILLES: St. Vincent!, Grenada!.

COMMON NAME: Black twist.

NOTES: Lesser Antillean plants are found in forest and second growth at elevations of 300-600 m. Flowers in Lesser Antilles from November to February and in July and August. Aublet's epithet *sinemariensis* was rejected by Jussieu and Niedenzu because the fruit he described and illustrated was sapindaceous, probably *Thinouia*. That rejection is not permissible under the current Code of Nomenclature. All other parts of the description and figure represent the malpighiaceae species, and the type at BM consists entirely of leafy and flowering parts; no fruit has been preserved. Note that a strictly analogous case is *Hiraea quapara* (Aublet) Sprague, for which Aublet illustrated another sapindaceous fruit. Here, too, Jussieu substituted a new name, *H. multiradiata*. Sprague's combination has been widely adopted. If that name based on a mixture is admissible, there can be no alternative to taking up the name *Mascagnia sinemariensis*.

STIGMAPHYLLON Adr. Juss.

Stigmaphyllon Adr. Juss. in St.-Hil., Fl. Bras. Merid. **3**: 48. 1832 [1833].

Syn.: *Brachypterys* Adr. Juss. in Deless., Icon. Sel. Pl. **3**: 20. 1837 [1838]. (Type species: *B. australis* Adr. Juss., nom. superfl. = *S. paralias* Adr. Juss.)

Woody or herbaceous vines, a few species shrubby. Stipules small, free, interpetiolar. Leaves with petioles often long and bearing 2 large glands at apex; laminae entire or lobed. Inflorescences unbranched or more commonly dichasia (or occasionally a small thyrses) of congested pseudoracemes, these usually corymbose or umbellate. Calyx bearing 8 glands on 4 lateral sepals, anterior sepal eglandular; petals yellow or yellow and red, glabrous; stamens 10, with filaments usually unequal in length and thickness; anthers very unequal in most species, 4 opposite lateral sepals often with reduced locules or sometimes sterile and 1 opposite posterior petal often small (anthers subequal in several species, including 1 of ours, *S. ovatum*); ovary with 3 carpels partially connate, all fertile; styles 3, apex with internal stigma and dorsally truncate, hooked, or bearing foliaceous lateral appendage, appendage symmetrical on anterior style, 1-sided on posterior styles. Fruits breaking apart into 3 samaras, each with largest wing dorsal, thickened on adaxial (upper) edge, veins terminating in thinner abaxial edge; much shorter winglets or crests present on sides of nut in some species; dorsal wing much reduced in a few species.

LECTOTYPE SPECIES: *Stigmaphyllon auriculatum* (Cav.) Adr. Juss.

A genus of about 100 species of the American tropics and subtropics; one species (*S. ovatum*) has been found once in West Africa. The treatment here is based in part on the following paper: Christiane Anderson, *Stigmaphyllon* (Malpighiaceae) in Mexico, Central America, and the West Indies, Contr. Univ. Mich. Herb. **16**: 1-48. 1987. I acknowledge with thanks Dr. Anderson's assistance, and the loan of the plate of *S. emarginatum*.

KEY TO THE SPECIES

1. Styles with well-developed apical folioles; samaras 20-45 mm long.
 2. Peduncles 0-5.3 mm long, distinctly shorter than pedicels.
 3. Lamina of leaf deeply auriculate at base, ciliate all around margin, nearly or quite glabrate at maturity, venation palmate *S. ciliatum*
 3. Lamina of leaf cuneate to rounded at base, without marginal cilia, persistently sericeous below, venation pinnate *S. puberum*
 2. Peduncles 3.5-17 mm long, mostly as long as pedicels or longer, to 2.5 times as long.
 4. Laminae persistently tomentose below or only belatedly glabrescent; hairs of lamina with short stalk and straight or sinuous crosspiece 0.6-1.2 mm long or longer; anthers pubescent; nut of samara inflated, (12-) 17-21 mm in diameter, usually without lateral crests *S. adenodon*
 4. Laminae thinly sericeous below to mostly glabrate at maturity except for some hairs persistent near base and on major veins; hairs of lamina quite sessile, straight, fusiform, 0.1-0.2 mm long; anthers glabrous; nut of samara uninflated, 6-7 × 4-5 mm, usually with prominent crest or winglet on each side *S. convolvulifolium*
1. Styles without folioles, rounded, truncate, or hooked at apex; samaras to 24 mm long.

5. Inflorescences terminating in umbels of (3 or) 4 (to 6) flowers; anthers subequal; all 3 styles with well-developed apical-dorsal hooks; samaras with large subspherical nut 8-11 mm in diameter and dorsal wing shorter than nut or about same length *S. ovatum*
5. Inflorescences terminating in umbels, corymbs, or pseudoracemes of (4 to) 6 to 20 or more flowers; anthers more or less strongly unequal; posterior 2 styles dorsally rounded, truncate, or with very short acute projection at apex; samaras with small flattened nut (4-7 × 2-3 mm) and dorsal wing several times as long as nut.
6. Posterior styles straight or slightly diverging, stout, much stouter than anterior style; anterior style with very short laterally flattened projection at apex 0.1-0.4 mm long; peduncles usually well developed, 1.3-2.5 mm long; leaves sericeous at first with straight appressed hairs, usually glabrate at maturity *S. emarginatum*
6. Posterior styles strongly twisted, about as thick as anterior style; anterior style with well-developed dorsiventrally flattened projection at apex 0.6-1.4 mm long; peduncles usually none or short, 0-2 (-3.5) mm long; leaves tomentose with twisted hairs, tomentum persistent below or eventually deciduous *S. diversifolium*

Stigmaphyllon adenodon Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, **13**: 288. 1840.

Holotype: Trinidad, *Schach* in 1824 (K!).

Syn.: *Stigmaphyllon grenadense* Niedenzu, De genere *Stigmatophyllo*, **2**: 26. 1900.
(Type: Tobago, *Eggers 5726* (K!, lectotype; A!, M!, P!, S!, islectotypes).)

Vine. Leaves with petioles 16-100 (-115) mm long, biglandular at apex; laminae ovate, 5-13.1 (-14.5) × 3.5-12.3 (-15) cm, base cordate or smaller ones truncate, margin bearing several small, short-stalked, peltate glands, apex acute or short-acuminate and mucronate, soon glabrate above, persistently tomentose below or only belatedly glabrescent, hairs with short stalk and straight or sinuous crosspiece 0.6-1.2 mm long or longer. Inflorescences basically dichasial but with branches inconsistently elongated, each umbel or corymb containing 15 to 30 (to 35) flowers; peduncles 3.5-14 (-17) mm long, commonly as long as pedicels or longer, to 2.5 times as long; pedicels 3.5-6 mm long. Petals yellow, erose or erose-denticulate; anthers pubescent, anterior 7 larger but 2 opposite anterior-lateral sepals with reduced locules, posterior 3 smaller and bearing small locules; all 3 styles with dorsal appendage bearing pendent folioles, anterior style shorter than posterior 2. Samaras 30-45 × 11-21 mm, widest at base of wing, which partly surrounds nut; nut subspherical, (12-) 17-21 mm in diameter, inflated and containing air cavities, usually without lateral crests.

GENERAL DISTRIBUTION: Trinidad and adjacent Venezuela; Amazonian Brazil, Colombia, Ecuador, and Peru.

DISTRIBUTION IN LESSER ANTILLES: Grenada!.

NOTES: Plants of riversides and wet lowland forests. Collected with flowers and fruits from November to April in our area.

Stigmaphyllon ciliatum (Lam.) Adr. Juss. in St.-Hil., Fl. Bras. Merid. **3**: 49. 1832 [1833].

Basionym: *Banisteria ciliata* Lam., Encycl. 1: 369. 1783 [1785].

Type: Rio de Janeiro, Brazil, Commerson (P!, holotype; c!, isotype).

Vine climbing to 8 m. Leaves with petioles 16-52 mm long, biglandular at apex; laminae broadly ovate, 4.2-9.5 × 3.5-7.3 cm, base deeply auriculate with rounded lobes usually overlapping, bearing slender cilia to 4 (-5.5) mm long all around margin, apex obtuse or acute or slightly acuminate and often mucronate, nearly or quite glabrate at maturity, venation palmate. Inflorescence an umbel of 3 to 8 flowers, usually solitary, sometimes arranged in dichasia; peduncles 0-5.3 mm long, to 1/2 as long as pedicel; pedicels 6-13 mm long, inflated distally. Petals yellow, fimbriate; anthers glabrous, locules small or absent on anthers opposite 4 lateral sepals; all 3 styles with dorsal appendage bearing pendent folioles, anterior style shorter than posterior 2. Samaras 20-28 × 11-18 mm, widest at base where wing encircles nut; nut more or less flattened laterally, ca. 7-9 × 3.5-4 mm, with prominent reticulum but without lateral crests.

GENERAL DISTRIBUTION: Occasional from Belize around the Caribbean coast of Central and South America to Trinidad; unknown from the Guianas; fairly common from Ceará down the coast of Brazil to Uruguay.

DISTRIBUTION IN LESSER ANTILLES: Barbados!.

NOTES: Plants of lowlands at or near the coast, most commonly at edge of mangrove associations or in beach scrub vegetation. Flowers in all months. This species is widely cultivated and was probably introduced to Barbados, but it now seems to be naturalized there along roadsides.

Stigmaphyllon convolvulifolium Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, 13: 289. 1840.

Syntypes: French Guiana, Martin (P!), Leblond 47 (G!), Richard (P!).

Syn.: *Banisteria convolvulifolia* Cav., Diss. 9: 428, pl. 256. 1790, nom. superfl.

Woody vine climbing to 10 m, or trailing on ground in open places. Leaves with petioles 20-45 (-105) mm long, bearing 2 protuberant glands at apex; laminae of larger leaves ovate, 8-16 × 5.5-12.5 cm, base rounded to deeply cordate, margin usually bearing both broad sessile glands and slender cilia (often abraded), apex mostly acuminate, soon glabrate above, thinly sericeous to often nearly glabrate below, with some hairs usually persistent near base, especially on major veins, hairs very short (0.1-0.2 mm long), fusiform, sessile, appressed. Inflorescences dichasial, each umbel or corymb containing 10 to 20 (to 30?) flowers; peduncles 5-10 mm long, commonly as long as pedicels or longer but never twice as long; bracteoles sometimes with 2 tiny abaxial glands or glandular spots; pedicels 4-9 mm long. Petals yellow or yellow and red, dentate or short-fimbriate; anthers glabrous, anterior 7 larger but 2 opposite anterior-lateral sepals with locules tiny or absent, posterior 3 smaller and bearing small locules; styles often hirsute proximally to middle, all 3 with dorsal appendage bearing pendent folioles; anterior style slenderer and straighter than posterior 2. Samaras 33-40 × 12-14 mm, usually widest beyond middle of wing but rarely at base, wing with an adaxial projection at base but not or hardly encircling nut;

nut 6-7 × 4-5 mm, bearing on each side a crest or winglet 1-3 mm wide, this occasionally dissected into 2 or 3 crests.

GENERAL DISTRIBUTION: Trinidad, Guyana, Suriname, French Guiana, and Brazil (Amapá and Pará).

DISTRIBUTION IN LESSER ANTILLES: Martinique!, St. Vincent.

NOTES: Members of this species occur from sea level to 225 m; riverine forests, shrubby secondary growth, and open places, where often trailing along the ground. Collected with flowers in all months. *Stigmaphyllon convolvulifolium* is known in the Lesser Antilles from only two vouchered collections, *Duss 1473* from Martinique and *H. H. Smith & G. W. Smith 418* from St. Vincent; I have not seen the latter. It was also observed and described in Martinique by Plumier, whose notes and figures were cited by Cavanilles. Since the plant has very showy flowers and would not be overlooked easily by collectors, the lack of more, and more recent, collections suggests that it appears occasionally as a waif in our islands but does not persist as an established member of the flora.

Jussieu's name must be treated as new and dating from 1840 because it was based on an illegitimate name (see Article 72 Note 1 of the Code of Nomenclature). Cavanilles' name was superfluous because he cited in synonymy the species-number and phrase-name of *Banisteria dichotoma* L., which he should have adopted.

Although I have not studied its type, I am reasonably sure that the name *Stigmaphyllon dichotomum* (L.) Griseb., *Linnaea* **13**: 207. 1839, based on *Banisteria dichotoma* L., *Sp. Pl.* **1**: 427. 1753, cannot be applied to our plant. Adrien de Jussieu, who saw Linnaeus' type in the Clifford Herbarium (BM), considered it to represent some species other than *Banisteria convolvulifolia* Cav., of which he said he had the type (*Arch. Mus. Hist. Nat.* **3**: 374. 1843). He made special mention of the leaves of the Linnaean type being hirsute below, which certainly cannot be said of our species. Dr. C. E. Jarvis of the British Museum has very kindly sent me a photograph of the Linnaean type, and the leaves do appear to be densely tomentose below, quite different from those of *S. convolvulifolium*.

***Stigmaphyllon diversifolium* (Kunth) Adr. Juss., *Ann. Sci. Nat. Bot. sér. 2*, **13**: 290. 1840.**

Basionym: *Banisteria diversifolia* Kunth in Humb., *Bonpl. & Kunth, Nov. Gen. Sp.* **5**: 159 (quarto ed.). 1821 [1822].

Type: Near Havana, Cuba, *Humboldt & Bonpland* (P-HBK!).

Syn.: *Banisteria ledifolia* Kunth in Humb., *Bonpl. & Kunth, Nov. Gen. Sp.* **5**: 159 (quarto ed.). 1821 [1822]. (Type: Havana, Cuba, *Humboldt & Bonpland* (P-HBK!).)

Stigmaphyllon cordifolium Niedenzu, *De genere Stigmatophyllo*, **8**. 1899. (Type: Martinique, *Siebert 135* (G!, lectotype; F!, GH!, M!, MO!, W!, isolectotypes).)

Stigmaphyllon ledifolium (Kunth) Small, *N. Amer. Flora* **25**(2): 141. 1910.

Woody vine. Leaves extremely variable, with petioles 2-10 mm long, biglandular at apex, glands sometimes obscure; laminae suborbicular, ovate, elliptical, to linear, 2-8 × 0.5-5 cm, often coriaceous, base cuneate to rounded to cordate,

margin entire, eglandular, and often slightly revolute, apex acute to rounded, usually apiculate, and occasionally emarginate, initially appressed-tomentose, soon glabrate above, persistently tomentose below with fine, stalked, more or less twisted hairs or eventually glabrescent, reticulum sometimes visible but hardly prominent. Inflorescences often dichasial or paniculate, branches terminating in umbels, corymbs, or occasionally condensed pseudoracemes of 6 to 20 flowers; peduncles usually poorly developed, 0.2 (-3.5) mm long, occasionally to 4 mm long; pedicels 7-15 mm long. Petals yellow, erose to deeply dentate; anthers glabrous or tomentose, 4 opposite lateral sepals lacking locules; anterior style distinctly shorter than but about as thick as posterior 2, erect or slightly recurved, bearing dorsiventrally flattened dorsal projection at apex 0.6-1.4 mm long, this sometimes wider proximally and thus pedaliform; posterior styles strongly spreading and twisted, laterally flattened even at apex, apex dorsally rounded, truncate, or apiculate. Samaras 15-24 mm long, wing 6-9 (-13) mm wide, widest near middle, bearing basal adaxial projection 1-2 mm high; nut small, 4-7 mm long, about 3 mm across, longitudinally rugose but without crests.

GENERAL DISTRIBUTION: Cuba.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Barts!, Barbuda!, Antigua!, St. Kitts!, Montserrat!, Guadeloupe!, La Désirade!, Marie Galante!, Les Saintes!, Dominica!, Martinique!.

NOTES: Plants of open places at low elevations. Flowers in diverse months in Cuba, but mostly from February to June in the Lesser Antilles. Plants from Cuba east to Anguilla and St. Barthélemy have the leaf lamina cuneate to rounded at the base; these are *Stigmaphyllon diversifolium* in the sense of Niedenzu (Small called the species *S. ledifolium*). From Barbuda south the leaf lamina is rounded to cordate at the base. These plants were segregated by Niedenzu and Small as *S. cordifolium*. *Stigmaphyllon cordifolium* also tends to have slightly longer petioles and a longer, narrower dorsal projection on the anterior style.

Stigmaphyllon emarginatum (Cav.) Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, **13**: 290. 1840. FIGURE 239.

Basionym: *Banisteria emarginata* Cav., Diss. **9**: 425, pl. 249. 1790.

Lectotype: Plate 249 of Cavanilles (designated by Niedenzu, De genere *Stigmatophyllo*, 5. 1899).

Syn.: *Banisteria fulgens* L., Sp. Pl. **1**: 427. 1753, not *Stigmaphyllon fulgens* Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, **13**: 289. 1840, Arch. Mus. Hist. Nat. **3**: 370. 1843. (Lectotype of *B. fulgens* L.: Clifford Herbarium (BM, photo MICH!).)

Triopterys lingulata Poiret in Lam., Encycl. **8**: 104. 1808. (Type: Santo Domingo (P-LAM!).)

Banisteria periplocifolia Desf. ex DC., Prodr. **1**: 589. 1824. (Type: Puerto Rico, Bertero (G-DC).)

Banisteria umbellulata DC., Prodr. **1**: 588. 1824. (Type: Bertero (G-DC, photo MICH!).)

Stigmaphyllon periplocifolium (Desf. ex DC.) Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, **13**: 290. 1840.

Stigmaphyllon lingulatum (Poiret) Small, N. Amer. Flora **25**(2): 140. 1910.

Woody vine. Leaves extremely variable, with petioles 2-28 mm long, biglandular at apex; laminae orbicular, ovate, elliptical, to linear, $2.9.5 \times 0.6-6.5$ cm, often coriaceous, base rounded or cordate, margin entire and eglandular, apex obtuse or rounded and usually emarginate and apiculate, initially sericeous but mostly glabrate at maturity, reticulum usually prominent above or on both sides. Inflorescences unbranched pseudoracemes of (4 to) 6 to 20 or more flowers, these separated or crowded into a corymb or umbel; peduncles usually well developed, 1.3-25 mm long; pedicels 6-19 mm long. Petals yellow, entire or erose or obtusely dentate; anthers glabrous, all fertile although some locules may be much reduced; anterior style slightly to distinctly shorter and slenderer than posterior 2, erect to recurved, bearing laterally flattened, unwinged dorsal hook at apex 0.1-0.4 mm long; posterior styles as stout as adjacent filaments, straight and erect to somewhat diverging, without folioles at apex, flat on top and bearing short acute dorsal projection with very narrow remnant of foliole on 1 side. Samaras 15-23 mm long, wing 7-10 mm wide, widest in middle, bearing basal adaxial projection 1-4 mm high, rounded or triangular; nut small, $4-6 \times 2-3$ mm, longitudinally rugose, often with 1 to several parallel crests.

GENERAL DISTRIBUTION: Greater Antilles and Virgin Islands.

DISTRIBUTION IN LESSER ANTILLES: Anguilla!, St. Martin!, St. Barts!, Barbuda!, Antigua!, St. Eustatius, Nevis!, Guadeloupe!, Martinique!, St. Lucia.

NOTES: Plants of open dry thickets, especially at low elevations. Flowers in all months, but most commonly collected from January to May.

Stigmaphyllon ovatum (Cav.) Niedenzu, De genere *Stigmatophyllo*, 2: 31. 1900.

Basionym: *Banisteria ovata* Cav., Diss. 9: 429, pl. 257. 1790.

Syntypes: Santo Domingo, *Desportes* and *Surian* (P-JU!, mounted together on sheet 11.546).

Syn.: *Brachypterys borealis* Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, 13: 291. 1840, nom. superfl.

Brachypterys ovata (Cav.) Small, N. Amer. Flora 25(2): 138. 1910.

to lanceolate or ovate, $4-12 \times 1.5-5.5$ cm, base attenuate, cuneate, or truncate, margin entire and eglandular, apex acute or obtuse and sometimes apiculate, originally sericeous but glabrate above and thinly sericeous below at maturity, biglandular at base or at apex of petiole; leaves subtending umbel often abruptly smaller, broadly ovate or subrotund. Inflorescence an umbel of (3 or) 4 (to 6) flowers, solitary or arranged in dichasia; peduncles 0.2-2.5 mm long; pedicels 15-30 mm long. Petals yellow, erose; anthers glabrous, subequal, that opposite posterior petal often somewhat smaller than others; styles equal or subequal, all bearing apical-dorsal hook 1-1.7 mm long, without folioles. Samaras 13-17 (-20) mm long, with 1/2 or less of length attributable to obtuse triangular dorsal wing ($4.9 \times 5.5-7.5$ mm); nut subspherical, 8-11 mm in diameter, usually bearing at maturity several lateral ribs or crests to 2 mm high, these radiating from areole at right angles to dorsal wing.

GENERAL DISTRIBUTION: Greater Antilles; Caribbean coast from Veracruz,

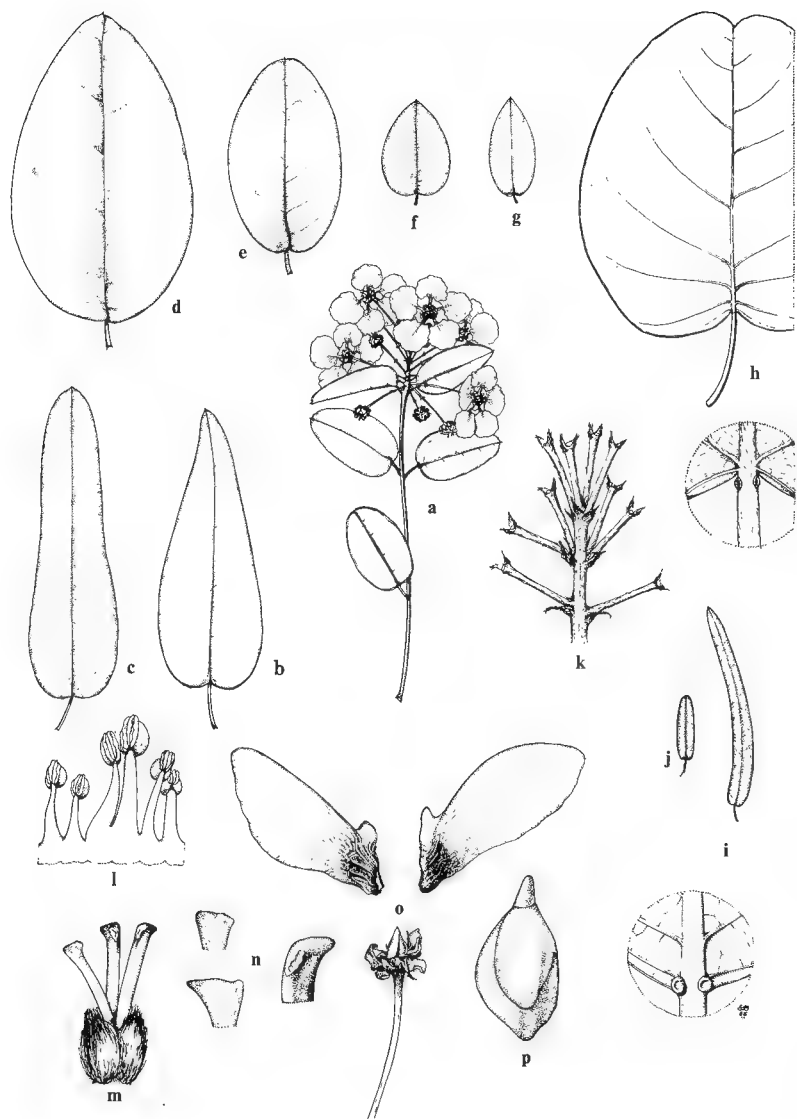


FIGURE 239. *Stigmaphyllon emarginatum*: a, flowering branch, $\times 0.45$; b-j, variation in size and shape of leaves from diverse collections, $\times 0.45$, with base of lamina in h $\times 2.3$, in i $\times 4.5$; k, details of inflorescence, $\times 2.3$; l, part of androecium, laid open, with stamen opposite posterior petal at right, $\times 4.5$; m, gynoecium, with anterior style at left, $\times 4.5$; n, apices of styles, the left 2 anterior, the right posterior, $\times 9$; o, samaras and receptacle showing torus, $\times 1.4$; p, embryo, $\times 4.5$.

Mexico, to Trinidad and Tobago, thence south to Maranhão, Brazil; also known from one collection from the coast of Sierra Leone, Africa.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Martinique!, St. Lucia!, Barbados!.

NOTES: Plants of wet lowlands at or near the coast, commonly on beaches or in mangrove associations, salt marshes, or riverine forests. Flowers in all months.

Stigmaphyllon puberum (Rich.) Adr. Juss., Ann. Sci. Nat. Bot. sér. 2, **13**: 289. 1840.

Basionym: *Banisteria pubera* Rich., Actes Soc. Hist. Nat. Paris **1**: 109. 1792.

Type: French Guiana, *Leblond 44* (G!).

Woody vine. Leaves with petioles 15-45 (-60) mm long, biglandular at apex; laminae of larger leaves narrowly to broadly ovate or subelliptical, 10-15 (-17) × 4-9 (-10.5) cm, base cuneate to rounded, margin entire and nearly or quite eglandular, apex acuminate, sericeous to glabrate above, hairs often persistent on midrib, persistently sericeous below, venation pinnate, even at base. Inflorescences dichasial, each umbel with 4 to 10 (to 20) flowers; peduncles 1-5 mm long; pedicels 4-8 mm long. Petals yellow and red, fimbriate (posterior 3 more deeply so than anterior 2); anthers glabrous, 2 opposite anterior-lateral sepals with large, globose, glandular connectives and locules much reduced, posterior 3 all with small locules; anterior style longer than posterior 2, with dorsal appendage an arching axis bearing pendent folioles; posterior styles with dorsal appendage bearing horizontal or somewhat pendent foliole. Samaras 22-40 × 10-15 mm, widest at base with wing partly surrounding nut; nut 8-12 × 6-9 mm, without lateral crest but often longitudinally rugose (parallel to axis of wing).

GENERAL DISTRIBUTION: Lowlands of northern South America to Belize and the West Indies.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, La Désirade!, Dominica!, Martinique!, St. Vincent!.

COMMON NAMES: Aile à ravet, liane à ravet.

NOTES: Plants of littoral vegetation, edges of rivers, dry woodlands, moist forests, from sea level to 700 m. Probably flowers in all months, but most commonly collected from May to October.

TETRAPTERYS Cav.

Tetrapteryx Cav., Diss. **9**: 433. 1790.

Vines or occasionally shrubs. Stipules small, usually interpetiolar. Leaves usually bearing glands. Flowers borne in umbels, corymbs, or pseudoracemes, these often grouped in panicles. Calyx usually bearing 8 or 10 glands; petals yellow or pink; stamens 10, anthers more or less alike, connective not exceeding locules; ovary of 3 centrally connate carpels, all fertile; styles 3, apex with stigma

internal to apical, dorsally smooth to truncate or short-hooked. Fruits breaking apart into 3 samaras, each samara having its largest wings lateral, usually 4 discrete wings; dorsal wing smaller, reduced to crest or absent in some species; intermediate winglets or projections present in some species.

LECTOTYPE SPECIES: *Tetrapteryx inaequalis* Cav.

A genus of about 90 species, all native to the American tropics and subtropics.

***Tetrapteryx inaequalis* Cav., Diss. 9: 433, pl. 260. 1790.** FIGURE 237h-m.

Type: "Santo Domingo," Jos. Jussieu (P-JU; see note below.)

Woody vine, climbing to 10 m, vegetative stems loosely tomentose or subvelutinous to glabrescent. Stipules connate in interpetiolar pairs, each pair triangular, caducous, leaving prominent scar between opposite petioles. Leaves with petioles 10-15 mm long, appressed-tomentose to glabrate, eglandular; laminae of larger leaves ovate or occasionally elliptical, 10-17.5 × 5.5-9 cm, base cuneate or more commonly rounded or slightly cordate, apex acuminate, appressed-tomentose to glabrate, some hairs often persistent on midrib below, several tiny impressed glands usually present below on each side in a row set well in from margin. Inflorescences paniculate, containing thin much-reduced leaves that often shrivel as fruits mature, branches terminating in umbels of 4 flowers; bracts and bracteoles eglandular; pedicels 5-8 mm long, borne on peduncles 4-6 mm long. Lateral 4 sepals biglandular; petals yellow, glabrous, entire or sinuate-margined; anthers alike, glabrous; styles alike, glabrous, recurved distally, acute and unappendaged at apex, stigma internal and decurrent. Samaras with upper lateral wings 17-28 × 6-10 mm, lower lateral wings 8-13 × 3-6 mm; dorsal wing none or usually represented by rib to 1 mm wide, best developed toward base; nut usually smooth between dorsal rib and lateral wings, rarely bearing a short protuberance.

GENERAL DISTRIBUTION: Puerto Rico; also St. Croix, according to Niedenzu (Pflanzenreich p. 208). The flowering specimen from Tobago (*Broadway* 4302, NY!) that Niedenzu called *T. citrifolia* is almost certainly *T. discolor* (G. Meyer) DC.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, Guadeloupe!, Martinique!, St. Vincent!.

COMMON NAME: Aile à ravet.

NOTES: In the Lesser Antilles, the species occurs in mesophytic forests and along rivers, at elevations of 110-500 m. Collected in flower or fruit in all months except May and June. Niedenzu (Pflanzenr. p. 207) considered this species a synonym of *Tetrapteryx citrifolia* (Sw.) Pers. They are certainly closely related, both belonging to the difficult group called Section *Lophogynixa* by Niedenzu. However, *T. citrifolia* from Jamaica, the type locality, has a well-developed dorsal wing on the samara and young stems that are tightly sericeous with straight appressed hairs. These differences lead me to consider *T. citrifolia* endemic to Jamaica and apply the later name *T. inaequalis* to the plant of

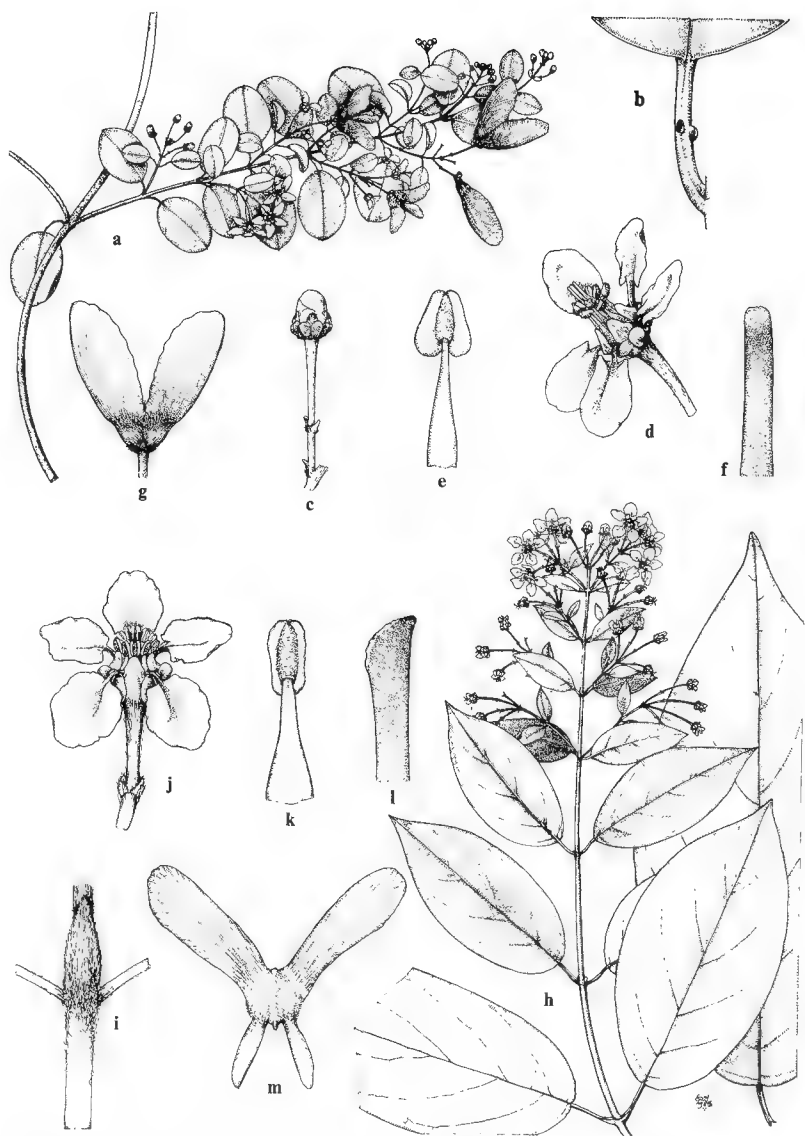


FIGURE 237. a-g, *Heteropterys purpurea*: a, flowering branch, $\times 0.45$; b, petiole, $\times 4.5$; c, flower bud, showing bract, peduncle, bracteoles, and pedicel, $\times 2.3$; d, flower, $\times 2.3$; e, stamen, abaxial view, $\times 9$; f, apex of style, $\times 18$; g, fruit with only 2 of the 3 samaras developed, $\times 0.9$. h-m, *Tetrapteryx inaequalis*: h, flowering branch, with separate leaf from lower stem, $\times 0.45$; i, stipules, $\times 2.3$; j, flower, $\times 2.3$; k, stamen, abaxial view, $\times 9$; l, apex of style, $\times 18$; m, samara, abaxial view, $\times 0.9$.

Puerto Rico and the Lesser Antilles.

Cavanilles stated in the protologue that his type came from Santo Domingo, but the species of the Lesser Antilles seems not to occur on Hispaniola. Cavanilles illustrated a samara that matches perfectly the samaras of plants from Puerto Rico and the Lesser Antilles. The type, which should be specimen 11692 in the Jussieu Herbarium, is missing, but a fragment of it is there as 11692 + A. That comprises 2 leaves and 1 samara, and the samara matches Cavanilles' plate and modern specimens from Puerto Rico and the Lesser Antilles. I conclude that the name *T. inaequalis* really does represent the species described here; Joseph de Jussieu probably collected it in Martinique, where he also stopped (Lasègue, Mus. Bot. Delessert, p. 484), instead of in Santo Domingo as believed by Cavanilles.

EXCLUDED SPECIES

Tetrapteryx discolor (G. Meyer) DC., Prodr. 1: 587. 1824.

In Das Pflanzenreich, Niedenzu cited a collection of this species by Caley from St. Vincent. The species is common in northeastern South America, but it is not known to reach the Lesser Antilles. It was probably introduced to the St. Vincent Botanic Garden by Alexander Anderson and collected by Caley when he was director of the Garden.

Tetrapteryx mogoriifolia Adr. Juss. in St.-Hil., Fl. Bras. Merid. 3: 11. 1832 [1833].

Niedenzu cited two collections of this species by Caley from St. Vincent. I have not seen the specimens, but the species is native to southern Brazil and is certainly not in the flora of St. Vincent. If Caley's plant really was *T. mogoriifolia*, it must have been cultivated in the St. Vincent Botanic Garden.

Tetrapteryx mucronata Cav., Diss. 9: 434, pl. 262. 1790.

Niedenzu cited one collection of this species from Martinique, Duss 44. I have not seen that collection, but the species is distinctive and I am willing to assume that Niedenzu identified the specimen correctly. No other collections of the species are known from the Lesser Antilles, so I suppose it was cultivated at one time in the Botanical Garden of St. Pierre and collected there by Duss.

EXCLUDED GENERA

Banisteriopsis C. B. Robinson.

The type of *Heteropteryx appendiculata* DC. came from St. Vincent, and it represents the species whose correct name is *Banisteriopsis lucida* (Rich.) Small. However, there are no modern collections of *Banisteriopsis* from St. Vincent or elsewhere in the Lesser Antilles, and de Candolle said "forsan culta" (perhaps cultivated) in the protologue, so I conclude that the species' range does not extend north of Trinidad.

Spachea Adr. Juss.

The Soufrière Tree has been cultivated in St. Vincent since its introduction from British Guiana in 1791 (R. A. Howard & K. S. Clausen, *J. Arnold Arbor.* **61**: 765-770. 1980). Specimens from St. Vincent have been called *Spachea elegans* (G. Meyer) Adr. Juss., *S. parviflora* Adr. Juss., *S. perforata* Adr. Juss., and *S. tenuifolia* Griseb.; the latter three names should all be considered synonyms of *S. elegans*. The species is not established outside cultivation in St. Vincent, nor does it even set seed there, probably due to the functional dioecy described in my treatment of the Malpighiaceae of the Guayana Highland (*Mem. New York Bot. Gard.* **32**: 42-43. 1981), which was quoted by Howard & Clausen in the publication cited above. See their paper for a fuller discussion of the history of *Spachea* in the Caribbean.

For recent experimental evidence on the breeding system of *Spachea*, see K. E. Steiner, "Functional dioecism in the Malpighiaceae: The breeding system of *Spachea membranacea* Cuatr.," *Amer. J. Bot.* **72**: 1537-1543. 1985.

POLYGALACEAE

POLYGALACEAE R. Br. *in* Flinders, *Voy. Terra Austr.* **2**: 542. 1814.

Herbs or woody vines. Leaves alternate, estipulate, simple and entire. Inflorescences racemes, spikes or panicles, pedicels with 1 bract and 2 bracteoles; flowers perfect, irregular; sepals 5, the 2 lateral ones larger, petaloid, the others smaller; petals 3, hypogynous, more or less united into a tube, the lower keel-like, often crested or lobed; stamens 6 or 8 united, apically transversely dehiscent; ovary 2-celled or 1-celled by abortion, style simple; ovules 1 in each locule. Fruit a dehiscent flattened capsule or a samara; seeds with an aril, either or both pilose, or without an aril.

TYPE GENUS: *Polygala* L.

A family of 12 genera and perhaps 800 species of temperate and tropical areas excluding New Zealand and Polynesia.

REFERENCE: S. F. Blake, *N. Amer. Fl.* **25**(4): 305-379. 1924.

KEY TO THE GENERA

- Erect herbs, annual or perennial; fruit 2-celled flattened capsule; seeds pubescent, with aril *Polygala*
Woody climbers; fruit a samara, seeds glabrous, lacking aril *Securidaca*

POLYGALA L.

Polygala L., *Sp. Pl.* **2**: 701. 1753.

Herbaceous annuals or perennials, roots fibrous, often with odor of winter-green. Leaves estipulate, alternate, simple, entire. Inflorescences racemose or spicate; sepals unequal, the 2 lateral sepals large and petaloid; petals 3, free but

each adnate to the staminal tube; stamens 8 or 6, monadelphous below or split above. Fruit a membranous compressed 2-celled capsule, marginally dehiscent; seeds 1 in each locule, pubescent, with membranous or hard aril or strophile.

TYPE SPECIES: *Polygala vulgaris* L.

A genus of 500 species more or less worldwide in temperate and tropical areas.

REFERENCE: S. F. Blake, Contr. Gray Herb. 47: 1-122. 1916.

KEY TO THE SPECIES

1. Keel with terminal fimbriate crest or beak; plant minutely glandular; leaves linear acicular; capsule 2.5-3 mm long, glabrous; aril lateral, bilobed, appressed against seed *P. paniculata*
1. Keel blunt, not crested or beaked; leaves elliptic-lanceolate; aril terminal, lobes flaring.
 2. Capsule 1-1.3 x 1 cm, pubescent; calyx with all sepals free; wings and sepals caducous *P. antillensis*
 2. Capsule 4.5 x 1.8 mm, glabrous; calyx with 2 lower sepals connate; wings and sepals persistent.
 3. Annual, wings usually shorter than capsule; leaves lanceolate, long-acuminate; flowers pale pink *P. violacea*



FIGURE 240 (left). *Polygala antillensis*, x 0.4. FIGURE 241 (right). *Securidaca diversifolia*, x 0.4.

3. Perennial, wings surpassing capsule; leaves elliptic, obtuse or subacute 8-11 mm wide; flowers bright rose *P. planellasi*

Polygala antillensis Chodat, Mém. Soc. Phys. Genève **31**(2): 33. 1893.

FIGURE 240.

Type: Martinique, *Belanger 621*.

Herb 35-50 cm tall, puberulous. Petioles 3 mm. Leaves ovate or upper lanceolate-ovate 4.7-6.5 x 1.5-2.5 cm, pubescent, base rounded to cuneate, apex acuminate. Racemes loose, 4.5-7 cm; flowers pale violet; sepals ovate or lanceolate-ovate 3.3-3.8 mm pubescent; wings ovate-oval, 8.2 x 5.3 mm, broadly rounded at apex, ciliate; keel 7 mm. Capsule oval, 10-12.5 mm, short pubescent with ascending and incurved hairs; seed obovoid 4.7 mm long, long silky pubescent, aril 1.4 mm high, 2.6 mm long with small pilose umbo and scarious lobed margin to aril, appressed.

GENERAL DISTRIBUTION: Hispaniola.

DISTRIBUTION IN LESSER ANTILLES: Martinique in area of St. Pierre.

NOTE: For a long time this species was known only from the type collection *Belanger 621* (B, presumably destroyed). Subsequently *Belanger 225* and *599* (P) are referred to this species as well as *Duss "67, 1382"* n.v. Stehlé searched in vain for the plant which was recollected in 1977 by Sastre.

Polygala paniculata L., Syst. Nat. ed. 10, **2**: 1154. 1759.

Type: Jamaica, LINN 882.9.

Syn.: *Polygala paniculata* L. forma *humilis* Chodat, Bull. Soc. Roy. Bot. Belgique **30**: 301. 1891. (Type: Costa Rica, *Pittier & Durand 3212*.)

Polygala paniculata L. forma *leucoptera* S. F. Blake, Contr. Gray Herb. **47**: 101. 1916. (Type: Puerto Rico, *Sintenis 40* (holotype, GH).)

Polygala paniculata L. var. *carlotina* E. H. Krause, Beih. Bot. Centralbl. **32**: 341. 1914. (Type: St. Vincent, *Krause 14642* (n.v.).)

Slender erect annual herb 6-40 cm tall, densely glandular-pubescent. Petioles 0.5-1 mm. Leaves whorled at base, alternate above, linear to linear-obovate 8-18 x 1-4 mm, base cuneate or adnate, apex mucronate. Racemes loose, to 9.5 cm, flowers rose, purplish or white; sepals ovate, 1.3 mm, wings obovate 2-2.5 mm, keel 2-2.5 mm with crest of 3 or 4 lobes. Capsule elliptic, 2.5-3 mm glabrous; seeds black, narrowly oblong 2 mm, loosely sericeous pubescent, aril lateral, appressed, 0.4-0.8 mm bilobed.

GENERAL DISTRIBUTION: Greater Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!.

COMMON NAMES: Estroi fragil, aster fragile, herb à lait, ditén manyók.

Polygala planellasi Molinet & M. Gómez ex M. Gómez, Anales Soc. Esp. Hist. Nat. **19**: 233. 1890.

Syn.: *Polygala peduncularis* A. Rich. in Sagra, Hist. Phys. Cuba, Bot. Pl. Vasc. 1: 37, t. 12 bis. 1841, not Burchell ex DC. (1824).

Type locality: "Cuba."

Erect herbaceous perennial, to 35 cm, branched, pubescent. Petioles 1-2 mm. Leaves elliptic, 1.8-2.7 x 0.8-1.1 cm, sparsely pubescent below; base cuneate, apex subacute to obtuse. Racemes 4-7 cm, sepals lanceolate-oblong, 2-2.4 mm, glabrous except for 2 or 3 hairs at apex and 2 or 3 pairs of pedicellate glands on margin; wings broadly ovate, 5 x 3.5 mm; keel 4.3 mm. Capsule oblong, 5 x 2.3 mm, glabrous; seeds narrowly oblong 3.2 mm, silky pilose, aril apical, strongly curved, tan, 0.9 mm, pubescent, umbo conspicuous, white.

GENERAL DISTRIBUTION: Guadeloupe.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe.

COMMON NAMES: Ti-branda, ti-lait.

NOTES: *Polygala planellasi* Molinet & M. Gómez is a renaming of *Polygala peduncularis* A. Rich. The type may well be a Richard specimen from the French Antilles.

The collection Duss 2981 (GH), referred by him to *Polygala angustifolia* (1897, p. 18), was considered by Blake to be *P. planellasi*, with which I can agree.

Polygala violacea Aublet (emend. Marques) Hist. Pl. Guiane 2: 735, t. 294. 1775; M. Marques, Rodriquesia 48: 175-183. 1979.

Type: Cayenne and Guiana, Aublet s.n. Marques reported a "syntype" (BM), collected by "Fusse." Howard (1983, p. 281) reported an Aublet specimen LINN-SM 1176.31.

Syn.: *Polygala angustifolia* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 405. 1823. (Type: Brazil, Humboldt.)

Polygala bryzoides A. St. Hil., Fl. Bras. Merid. 2: 44. 1829. (Type: Brazil.)

Strict or branched annual to 30 cm, more or less densely pubescent with incurved hairs. Petioles 1-2 mm. Leaves linear-lanceolate, 1.3-4.5 x 0.1-0.9 cm, subglabrous or sparsely pubescent, apex acuminate or acute, base similar. Racemes 1.5-7 cm long; flowers pinkish-purple and greenish; sepals oblong-ovate obtuse, sparsely ciliate, with 2 or 3 pairs of pedicellate glands; wing petals 3-4 x 2.7-3 mm; keel 3.8 mm. Capsule oblong-oval, 2.8-3 x 1.7 mm, glabrous; seed 2.5 mm long, densely pubescent, aril corneous, crestlike with 2 short appendages.

GENERAL DISTRIBUTION: Mexico, Central America, Cuba, South America.

DISTRIBUTION IN LESSER ANTILLES: Grenada. Known only from the collection Broadway 1818.

NOTE: In some annotations *P. bryzoides* A. St. Hil. is accepted with the note that *P. angustifolia* Kunth is antedated by Gilibert, Fl. Lit. Inch. 1782. While Gilibert's work is earlier, it does not employ binomials consistently, and the names in it are rejected.

CULTIVATED AND QUESTIONABLE TAXA

Polygala butyracea Kechel. The collection *Duss 3893* (NY) of a cultivated plant was so annotated by Blake. This is an African species.

Polygala hecatantha Urban was described from material from Hispaniola and Puerto Rico. Vélez (1957) reported the species from Dominica, Martinique, St. Lucia and St. Vincent based on his own collections. None of these has been located.

Polygala ovata Poiret was based on a Nectoux specimen from Santo Domingo. It was not mentioned by Chodat (1891) and was said to be "not identifiable" from the description by Blake (1916, 1924). This may be the correct name for *P. antillensis* Chodat and/or *P. sancta-luciae* Chodat.

Polygala sancta-luciae Chodat (Mém. Soc. Phys. Genève 31(2): 36. 1893) was typified by the collections *Paul dux de Württemberg*, from Santo Domingo and *Schwaegrichen*, from St. Lucia. Chodat did not supply details of a dissection or an illustration. Blake distinguished this taxon from *P. antillensis* Chodat only on the basis of the capsule ciliate versus pubescent for *P. antillensis*. *Ekman 6904* from Hispaniola is comparable. The plant has not been recollected on St. Lucia.

Polygala timoutou Aublet. This distinctive species was represented by a collection *Bena s.n.* (P) without specific locality in Guadeloupe. The record is suspect.

SECURIDACA L.

Securidaca L., Syst. Nat. ed. 10, 2: 1155. 1759, nom. cons.

Syn.: *Elsota* Adans., Fam. Pl. 2: 358. 1763. (Type species: not designated.)

Woody climbers. Leaves alternate, entire, sometimes biglandular in the position of stipules. Racemes or panicles terminal and axillary; sepals 5, unequal, 2 large and petaloid; petals 3, 2 upper petals adnate to base of staminal tube, free from keel; keel subequal, concave-galeate, often broadly 3-lobed and apically appendaged; stamens 8, united at base into a sheath but split above; ovary 1-locular, uniovulate, style incurved, subterete or dilated with emarginate or lobed apex. Fruit a samara, indehiscent, variously crested, produced apically into a long wing; seed glabrous, estrophilate.

TYPE SPECIES: *Securidaca volubilis* L. 1759 (not 1753).

A genus of 50 species of tropical America, Africa and Asia.

Securidaca diversifolia (L.) S. F. Blake in Standley, Contr. U. S. Natl. Herb. 23: 594. 1923. FIGURE 241.

Basionym: *Polygala diversifolia* L., Sp. Pl. 1: 703. 1753.

Type: Unresolved.

High climbing woody vine, branches puberulous. Leaves elliptic-oblong to ovate or oval, 3.5-5.8 x 1.5-5 cm, chartaceous, puberulent to glabrate, apex acute or obtuse, base rounded or cuneate. Racemes or panicles, loose, to 8 cm, flowers pink or purple, sepals 3-4 mm; wing sepals 7-10 mm; upper petals 5-7 mm, keel 7-10 mm, apex many-folded fimbriate crest. Samara 4-6 cm, locule plump, reticulate, 5-8 mm long, wing obovate, basally narrowed, 50 x 11-17 mm.

GENERAL DISTRIBUTION: Central America, South America.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!, St. Vincent!, Grenada!, Barbados!.

COMMON NAMES: Liane-Pâques, liane-branda, liane-rose, Easter vine.

NOTES: *Securidaca lamarckii* Griseb., Fl. Brit. W. Indian Is. 30. 1859, attributed to St. Vincent on the basis of a Guilding collection and to Martinique, has not been recollected and is not verifiable.

A white-flowered plant of the "Easter blossom" is reported in the annual report of the St. Vincent Department of Agriculture for 1915-16 suggesting it to be an "interesting and useful acquisition to the botanical garden." There is no record that it persisted in cultivation if established then.

KRAMERIACEAE

KRAMERIACEAE Dumort., Anal. Fam. Pl. 20, 23. 1829.

Hemiparasitic shrubs. Stipules wanting; leaves alternate, simple, entire. Flowers axillary, perfect, irregular, peduncles with 2 foliaceous bracts; sepals 4, unequal; petals 5, the upper 3 long clawed, distinct or partially united, the lower 2 modified to fleshy sessile glands; stamens 3 or 4, free or adnate to the clawed petals, anthers poricidal, ovary 1-celled, ovules 2, style cylindric. Fruit globose, spiny, indehiscent, 1-seeded.

TYPE GENUS: *Krameria* L.

A monotypic family of warm areas from southern United States to Chile.

KRAMERIA L.

Krameria L. *in* Loebl., Iter Hispan. 195. 1758.

Characters of the family.

TYPE SPECIES: *Krameria ixine* L.

A genus of 25 species.

REFERENCE: B. B. Simpson & J. J. Skvarla, Amer. J. Bot. **68**: 277-294. 1981.

Krameria ixine L., Syst. Nat. ed. 10, **2**: 899. 1759.

FIGURE 242.

Type: Venezuela.

Shrub of 1 m but widely spreading, branches stiff and often modified into spiny tips, white tomentose. Petioles 2-6 mm; blades narrowly oblong to oblong-lanceolate, 1-2.5 cm long, 2-5 mm wide, apex spinulose-acuminate, base cuneate.

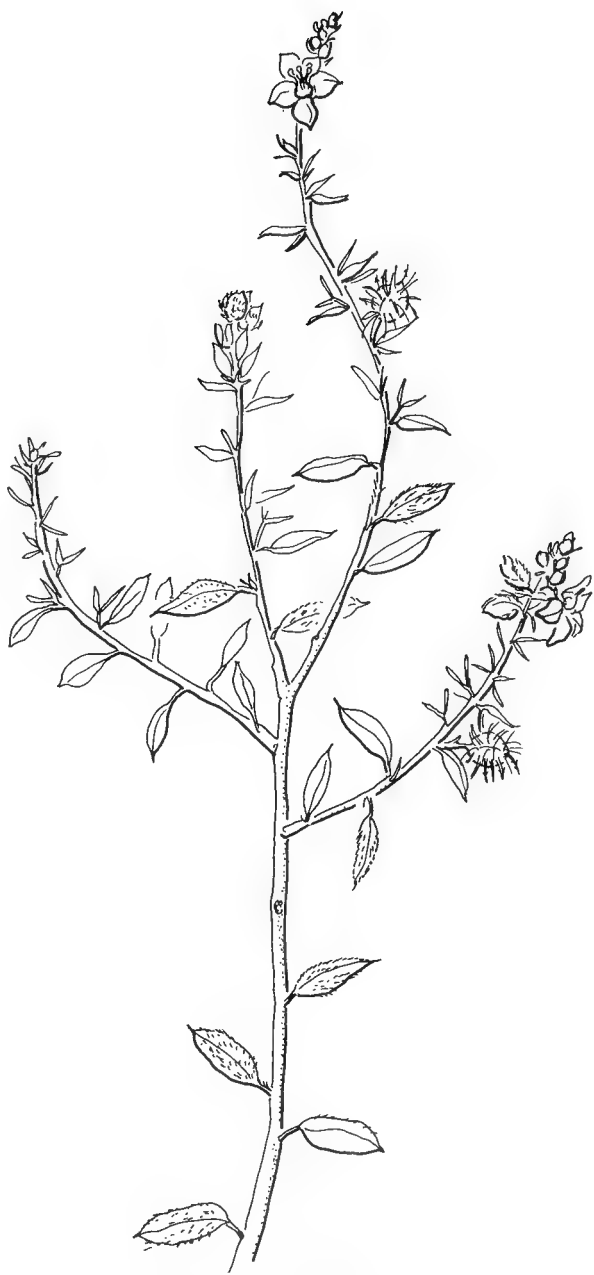


FIGURE 242. *Krameria ixine*, x 0.8.

Peduncles 2-4 mm, sepals 4, ovate, acuminate, 6 mm long, silky pubescent; upper petals connate at the base, 4 mm long, narrow clawed, limbs ovate, acute, purplish-red; lower petals modified into glands, about 3 mm long; ovary pubescent. Fruit globose, 5-6 mm dia., surface pilose, with long slender retrorsely barbed red-brown spines 4-6 mm long; pericarp woody; seed light tan, 4 mm dia.

GENERAL DISTRIBUTION: Hispaniola, Puerto Rico, northern South America.

DISTRIBUTION IN LESSER ANTILLES: Antigua!, St. Eustatius!, St. Kitts!, Grenada!.

DICHAPETALACEAE

George W. Staples

DICHAPETALACEAE Baillon *in* C. Martius, Fl. Bras. 12(1): 365. 1886, nom. cons. ('Dichapetaleae').

Syn.: Chailletiaceae R. Br. *in* Tuckey, Narr. Exped. Zaire 442. 1818. "Chailleteae"

Tropical shrubs, trees, or climbers, often toxic. Leaves alternate, simple, stipulate. Inflorescence an axillary cyme or fascicle, the axis often fused to the petiole of the subtending leaf. Flowers bisexual (or unisexual), regular or slightly zygomorphic, often on articulated pedicels. Sepals 5, imbricate. Petals 5, free, or fused below into a short tube and free above, often lobed or forked apically. Stamens 5, alternate with, and shortly fused to, the petals, some reduced to sterile staminodes; anthers introrse. Ovary superior, 2 or 3-locular, each locule biovulate, ovules pendulous; style simple or 2 or 3-fid, stigmas filamentous; epipetalous glands usually surrounding base of ovary. Fruit a lobed drupe, \pm pubescent, 1-3-seeded. Seeds large, hard, carunculate, lacking endosperm.

TYPE GENUS: *Dichapetalum* Thouars.

A small family of 4 genera and perhaps 200 species distributed throughout the tropics. A single genus, *Tapura*, is represented in the Lesser Antilles.

REFERENCE: Prance, G. 1972. Dichapetalaceae. Flora Neotropica Monograph 10.

TAPURA Aublet

Tapura Aublet, Hist. Pl. Guiane 1: 126, t. 48. 1775.

Shrubs or trees, usually of mesic habitats. Leaves distichous, coriaceous. Flowers perfect (or polygamous), slightly zygomorphic. Sepals unequal, slightly connate basally. Petals fused at base, unequal; 2 larger lobed and often cucullate; 3 smaller subentire. Stamens 5, 3 fertile, exserted from the corolla, 2 staminodes not exceeding the corolla tube; filaments fused to the corolla tube below, free above. Ovary 3-locular, velutinous-puberulent; disc unilateral; style simple or 2-3 divided nearly to the base. Drupe leathery, with a crustaceous endocarp.

TYPE SPECIES: *Tapura guianensis* Aublet.

A genus of 17 tropical American and 5 tropical West African species, primarily shrubs. The single Lesser Antillean species is a medium to large tree of the primary forest understory.

Tapura latifolia Bentham, Hooker's J. Bot. Kew Gard. Misc. 5: 291. 1853. FIGURE 243.

Type: sine loc., herb. Forsyth s.n. (holotype, K).

Syn.: *Tapura pedicellaris* Chodat, Bull. Herb. Boissier 4: 498. 1896. (Type: Martinique, Hahn 1478 (syntype, G); Guadeloupe, L'Herminier s.n. (syntype, G).)

Tapura antillana Gleason, N. Amer. Fl. 25: 382. 1924. (Type: Dominica, Fishlock 13 (holotype, NY; isotype, GH!).)

Tapura guianensis Aublet sensu Duss, Fl. Phan. Antill. Franç. 151. 1897.

Tree 10-15(-40) m tall. Trunk deeply furrowed, bark grayish; young branches 6-10 mm in diameter, gray-brown, glabrous; twigs terete, 3-4 mm in diameter, smooth to striate, grayish. Petioles thick, terete or flattened, wrinkled, 5-16 x 1-2 mm, subglabrous or finely puberulent with appressed, shortly 2-armed hairs. Stipules triangular, ≤ 2 mm long, deciduous. Blades ovate, broadly elliptic to elliptic-oblong, rarely lanceolate, 7-15.2 x 3.3-8.5 cm, base inequilateral, rounded or cuneate, margins entire, apex acuminate, acute or obtuse, often apiculate, coriaceous, sparsely appressed pubescent along midrib below, otherwise glabrous, midrib sunken above, all veins prominent below. Inflorescence an axillary glomerule borne on the upper portion of the petiole; pedicels articulated, 1-4 mm long, gray puberulent. Flowers hermaphrodite, slightly zygomorphic, yellow or whitish-yellow, fragrant, filled with a mass of lanate hairs projecting beyond the tube; sepals 5, subequal, imbricate, widely ovate to orbicular, 4-5 x 3-4 mm, margins ciliolate, apex rounded, herbaceous, finely puberulent abaxially, glabrous and shiny within; corolla zygomorphic, petals 5, unequal, clawed, basally fused into a tube, free above; 2 larger spatulate, geniculate above the middle, apically bicucullate, ca. 5 mm long, membranous, glabrous; 3 smaller spatulate to oblanceolate, apex not enlarged or cucullate, ca. 4 mm long; stamens 5, alternate with the petals, 3 fertile ca. 5 mm long, 2 sterile ca. 3-4 mm long, filaments fused to petals below, free, flattened, glabrous above, anthers ellipsoidal, bilocular, introrse, red and white; ovary depressed ovoid, trigonous, < 1 mm in diameter, 3-locular, golden velutinous, with 2 fleshy, lobed, glabrous basal glands, style terete, 6-9 mm long, puberulent, stigma 3-parted, each lobe filiform, smooth. Drupe subtended by the persistent calyx, broadly ellipsoid, 15-25 x 11-23 mm, grayish white, puberulent, with a succulent, sweet mesocarp, leathery on drying, 1-3-seeded. Seeds ellipsoid, laterally compressed, 15-18 x 10-12 mm, tan, hard, glabrous.

GENERAL DISTRIBUTION: Endemic in the Lesser Antilles.

DISTRIBUTION IN LESSER ANTILLES: Guadeloupe!, Dominica!, Martinique!, St. Lucia!.

COMMON NAMES: Bois-côtelette noir, bois-côte noir, bois-côte gebois, rosillet, bois-côte, côtelette noir.

NOTES: A medium to large tree of the primary forest understory growing between 400 and 980 m elevation. Duss (pp. 151-152. 1897) reports that rats, birds and bats compete for the fruits and that the wood is hard and usable for construction. He recorded the tree as rare to plentiful in the forests on Guadeloupe, and common in those of Martinique. The trees seem to flower and bear fruit sporadically throughout the year.



FIGURE 243. *Tapura latifolia*: flowering branch, x 0.5; fruit, x 1.

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